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**AN  
ANALYSIS  
OF  
CONTRACT  
ADMINISTRATION  
OF  
THE  
USAF  
CONTRACTUAL  
OVERHAUL  
AND  
MAINTENANCE  
PROGRAM**

A STUDENT THESIS BY:

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**SCHOOL OF SYSTEMS AND LOGISTICS  
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WRIGHT-PATTERSON AIR FORCE BASE, OHIO**

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SLSR-3-66

AN ANALYSIS OF CONTRACT ADMINISTRATION  
OF THE  
USAF CONTRACTUAL MAINTENANCE AND OVERHAUL PROGRAM

A Thesis

Presented to the Faculty of the School of Systems and Logistics  
of the Air Force Institute of Technology  
Air University

In Partial Fulfillment of the Requirements for the  
Degree of Master of Science in Logistics Management

By

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August 1966

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and approved in an oral examination, has been accepted by  
the undersigned on behalf of the Faculty of the School  
of Systems and Logistics in partial fulfillment of the  
requirements for the degree of

MASTER OF SCIENCE IN  
LOGISTICS MANAGEMENT

Date: 24 August 1966

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James A. Mahony  
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## CHAPTER I

### INTRODUCTION

#### A Conceptual Analysis of the Problem

The United States Air Force (USAF) conducts some of its maintenance and overhaul of aircraft program in the continental United States through maintenance contracts negotiated with commercial aircraft companies. These contracts also include overhaul work sponsored by other United States governmental agencies. The program currently consists of work performed at thirteen contractor plants, all located in the eastern, southern, and southeastern regions of the United States.

Specific projects presently included in the program are overhaul and maintenance of the Presidential Fleet, Special Mission aircraft, Military Assistance Program aircraft, and aircraft from the USAF and U.S. Navy inventory. The program, in addition, includes overhaul and maintenance of engines, components, and accessories. The face value of the active contracts administered as of 30 June 1966 was approximately \$82 million. The projection for fiscal year 1967 is \$131 million with the probability that projects totaling \$28 million will be added during the course of the

year.<sup>1</sup>

The Air Force Logistics Command (AFLC) is responsible for the overall management of the program.<sup>2</sup> Eight detachments or management teams of Air Force military and civilian personnel have been organized at specific locations to manage and coordinate contract administration services at the contractors' plants. In the fall of 1965, it was reported that serious deficiencies existed in the overhaul program and in the conduct of final acceptance inspections.<sup>3</sup> Specifically, instances were noted where a number of deficiencies had been discovered after overhauled aircraft had been inspected and accepted by Air Force personnel. These aircraft had been overhauled under the Military Assistance Program; the deficiencies were discovered after delivery had been made to the foreign governments.

#### Scope and Factors Bearing on the Problem

The multi-billion dollar business of Defense Procurement Management can be divided into three phases. They are as follows: (1) Procurement management during the

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<sup>1</sup>Information obtained from Oklahoma City Air Materiel Area (Contract Management Branch (OCPOU)) on 7 July 1966.

<sup>2</sup>Letter from Headquarters AFLC (MCG) to all Air Materiel Area Headquarters, subject: "AFLC Contract Administration of Maintenance," Wright-Patterson AFB, Ohio, 4 October 1965.

<sup>3</sup>Charles D. Jantzen, "Investigation of Regulations Governing Contract Administration Responsibilities for Logistic Support Manager" (Unpublished Logistics Research Project Outline, School of Systems and Logistics, 1965), pp. 1-2.

planning and initiation period, (2) Procurement management during the solicitation-negotiation period, and (3) Procurement management during the post-award period.<sup>4</sup> It is this post-award period that will be discussed in this study. Specifically, the active administration and surveillance of the contractor's performance to make certain that the contract is performed successfully.

The term contract administration services, in its broad sense, denotes the management of all aspects of assigned government contracts for the purpose of assuring that a contractor's total performance complies with his contractual commitments and that the obligations of the government are fulfilled in a timely manner.<sup>5</sup> This managerial function is conducted within the framework of the delegation of authority and responsibility from the procurement contracting officer to the administrative contracting officer.<sup>6</sup> Included under the term contract administration services are the functional components of administrative review of a contractor's accounting and procurement systems, wage and salary structure, government property administration,

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<sup>4</sup> Harbridge House, Inc., Defense Procurement Management Course, A Report Prepared Under the Direction of the Office of Naval Material (Boston: Harbridge House, Inc., 1965), pp. 1-5.

<sup>5</sup> U.S., Department of Defense, Project 60 - Glossary of Contract Management Terms (Washington, D.C., 1 May 1963), p. 47. Hereafter cited as Project 60 Glossary.

<sup>6</sup> U.S., Air Force Systems Command, Procurement Contract Management, AFSCM 70-2 (Wright-Patterson AFB, Ohio: 29 June 1962), p. 58.



assessment of production and industrial resources, transportation, production support and surveillance, quality assurance, and industrial security review.

The majority of defense contracts are now administered by one agency, the Defense Contract Administration Services Agency (DCASA).<sup>7</sup> This consolidation is the result of the implementation of the recommendations of a task force known as Project 60, chartered in May 1962, with the mission of proposing a plan for the establishment of uniform field contract management of all contract management functions. From its inception, however, this task force recognized that there were certain types of contracts which could be administered more effectively and economically under the existing military service sponsored organizations. These exceptions included contracts in certain plants which were being administered by on-site contract administration organizations and other contracts in designated categories. This study is concerned with the former exception and, in particular, those contracts negotiated by the United States Air Force for the maintenance and overhaul of aircraft.

The request for exemption to consolidation under DCASA was granted to AFLC in October 1965 upon request by USAF to the Department of Defense.<sup>8</sup> This contract

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<sup>7</sup>U.S., Department of Defense, DOD Directory of Contract Administration Services Components, DOD Manual 4105.59-H (Washington: April 1966), Section I.

<sup>8</sup>Letter from Headquarters USAF (AFSPPDA), to AFLC, subject: "Retention of Administration of Depot Maintenance Contracting," Washington, D.C., 22 June 1965.

administration authority was primarily intended to place AFLC in a position where it could insure the responsiveness of the contract administration organization in the maintenance and overhaul contract area. Historically, these contracts have been difficult to administer and have resulted in many problem areas in the past. It was anticipated that the shortened administrative chain of command would improve the responsiveness of the AFLC organization to the problems occurring in the plants.

The work performed under the maintenance and overhaul program has many and varied aspects. The nature of the product itself contributes to this complexity when it is considered that each aircraft or component is unique in its previous exposure to variations of environmental influences, operational use, and maintenance. These factors, individually and collectively, tend to make the development of a clear, definitive work statement or specification extremely difficult.

Administering a contract of this type then, differs significantly from a normal supply contract because of this uniqueness. In addition, on a normal supply contract the contractor is generally responsible for total performance while in a maintenance and overhaul contract the government commits itself to certain obligations which have an influence on the contractor's performance. This includes providing government furnished materiel, equipment, special

tooling, reparable units, and technical orders and data.<sup>9</sup> Discrepancies in the condition and quality of these items and/or the timeliness of their delivery affect the conduct of the contractor's productive effort which, in turn, could be reflected in the quality of the end product, its delivery date, and/or its overall cost.

Under these conditions, contract administration entails considerably more than surveillance of contractor performance; the administrative team must also insure that governmental obligations are met in a timely manner. Program success depends, to a degree, on the manner in which governmental obligations are discharged.<sup>10</sup>

All facets of the various functions of contract administration associated with the maintenance and overhaul program were investigated. This necessarily also included a review of the contractual instruments.

The overall maintenance program plays a vital role in assuring that our military forces are equipped with weapons systems that are capable of performing in accordance with their design and mission. The contractor maintenance and overhaul program is an important and significant link in this chain. Maintaining a civilian industrial capability fully qualified in the repair of military aircraft and associated equipment enhances the overall maintenance

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<sup>9</sup>Headquarters Eastern Contract Management Region, Management Guide Maintenance and Overhaul Contracts (Olmsted AFB, Pennsylvania: April 1965), p. 1.

<sup>10</sup>Ibid., p. 2.

capability and provides an extremely important base from which to expand during periods of emergency.

With the increasing maturity of weapons systems and the mounting costs of the Defense Establishment, the ability to prolong the serviceable life of weapons systems presently in inventory takes on ever increasing dimensions and affords an opportunity of significantly contributing to cost reduction. The military services have learned through experience that many of the types of operations our forces are engaged in today require the utilization of weapon systems that were thought to be almost obsolescent. Several projects involving the modification of aircraft which have been in the USAF inventory for decades are making a vital and significant contribution to our nation's efforts in Southeast Asia. It is imperative that the maintenance and overhaul of these equipments be accomplished as effectively, and efficiently, as possible. Sound administration of maintenance and overhaul contracts provides a means of contributing to this effort.

The problem has Department of Defense wide applicability since the Air Force performs contract administration services for all DOD sponsored work in the contractor plants under Air Force cognizance.<sup>11</sup>

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<sup>11</sup>U.S., Department of Defense, Department of Defense Contract Administration Services Plant Cognizance Program, DOD Instruction 4105.59 (Washington: 13 October 1964), p. 2.

### Problem Delimited for Study

It was determined that the magnitude of data accumulation and surveys required to study all maintenance and overhaul contracts and their administration within the Department of Defense would exceed the time and fund limitations of the investigation. Therefore, it was decided to delimit the general problem to an analysis of the Air Force administration of maintenance and overhaul contracts.

### Hypotheses

"A hypothesis may be defined as a tentative proposition, stated as a generalization, which is to be tested from a sample of data to be collected in a research project."<sup>12</sup>

The first hypothesis is that there is a significant correlation between the basic causes of contract difficulties experienced by government contract administration services personnel and those difficulties experienced by contractors.

The second hypothesis is that governmental action has a direct influence on contractor performance.

a. The government assumes an obligation in providing government furnished property; governmental performance then, is an active condition of contractor performance.

The third hypothesis is that procedures can be developed to insure that contractor performance and governmental quality assurance inspections fully meet the

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<sup>12</sup>J. F. Rummel and W. C. Ballaine, Research Methodology in Business (New York: Harper and Row, 1963), p. 56.

requirements of the United States Government.

a. The maintenance data furnished through the Air Force Manual 66-1 reporting system provides information that can be used as a sound basis for the development of clearly defined work specifications.

b. Clearly defined work specifications will form the foundation for the design of effective quality assurance and quality control procedures.

#### Evidence Needed to Test Hypotheses

The hypotheses were tested through analyses of three primary sources, i.e., a questionnaire, management reports, and personal interviews.

The primary means of gathering statistical data were two multiple choice questionnaires. One set of questionnaires was sent to all the Air Force field detachments engaged in the plant cognizance program for distribution to a representative group of personnel including the Officer In Charge (OIC), administrative contracting officer (ACO), and quality assurance, production, property administration, and flight test personnel. The second set of questionnaires was forwarded to all contractors involved in the program for distribution to the executive and administrative management level as well as to specific functional groups within the contractor's organization. The questions included in the questionnaires covered specific potential problem areas in each of the functional areas associated with performance of the contract.

The management reports included AFLC Inspector General reports, reports of study groups, and correspondence relating to the conduct of the maintenance and overhaul program.

Personal interviews were conducted with government and contractor personnel actively engaged in the program. These interviews were conducted after receipt of the replies to the questionnaire.

Other sources included Department of Defense and Military Department Instructions, Directives, Studies and Technical Manuals as well as recognized texts and other publications on the subject.

#### Test of Hypotheses and Presentation of Data

The Spearman rank correlation coefficient and the median test were used to test the association of difficulties experienced by government contract administration services personnel and those experienced by contractors' representatives.

Responses to the questionnaires, designed to attain an ordinal scale of measurement with observed scores drawn from an underlying continuous distribution, were used to rank specific problem areas. The coefficient obtained was tested for level of significance.

Having established, through the tests mentioned above, that an association of problem areas existed, the corner test of association was used to determine the association of one variable with another in the extreme cases,

i.e., the areas causing the most significant and the least significant problems.

A computer program was used to tally the responses to the questionnaires. The machine listing of these tallies, subdivided into three levels of management, is included in the Appendix. Weighted factors were then used in scoring the responses. The application of the weighted factors with the resultant scores computed for each question are also included in the Appendix. Chapter IV contains a detailed discussion of the rationale and the methodology employed in computing the scores. Also included in this chapter are tables indicating the rank assigned to each question on the basis of its relative score. One table lists the questions in numerical order with their individual computed scores and rankings in relation to governmental personnel replies and also contractor personnel replies. A second table lists the computed scores by numerical order of rank. The remainder of Chapter IV presents the statistical analysis of the questionnaire data. Chapter V then presents an analytical discussion of specific problem areas of mutual concern to contract administration services and contractor personnel.

#### Preview of Chapters in the Thesis

Chapter II presents a brief analysis of current contractual procedures utilized by the Air Force in the plant cognizance program. This discussion includes a review of the background, current concept, and implementation of the post-award coordination and surveillance phase.



Chapter III concerns the current organizational concept applicable to the field operation of the program. A discussion of the internal organization of the field detachments as well as their relationships with higher headquarters is included.

The purpose and content of Chapters IV and V are included above.

Chapter VI is devoted to a discussion and analysis of internal AF management of the program, including manning levels, workload, and training.

The concluding chapter presents the summary and recommendations of this research project. Specific recommendations are made as well as recommendations for further study into present or potential problem areas.

## CHAPTER II

### CONTRACTUAL PROCEDURES AND SCOPE OF THE PROGRAM

#### Introduction

This chapter presents a brief analysis of the Air Force maintenance and overhaul program, a discussion of the contractual instrument used in contract maintenance, a review of the background and the current concept utilized, and an analysis of post award coordination and surveillance performed by contract administration personnel of the Air Force.

#### Discussion

The Air Force recognizes three levels of maintenance. They are termed organizational, field, and depot. The assignment of responsibility is determined principally by the investment in special tools, equipment, and facilities and by the level of skills required to do the task. In general the first two levels are a responsibility of the using commands, while depot level maintenance is the responsibility of AFLC and the Air Materiel Areas (AMA).<sup>1</sup> Depot level maintenance is performed either in-house (organically) or by the letting of maintenance contracts. This procedure

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<sup>1</sup>U.S., Department of the Air Force, Depot, Field, and Organizational Maintenance: Policy, Objective, and Responsibilities, AFR 66-1 (Washington, D.C.: 5 September 1961, p.3.

stems from current Department of Defense policy.<sup>2</sup> It is the contract maintenance portion of the depot level maintenance program that will be analyzed in this study. It is Air Force policy to accomplish depot level maintenance on mission-essential or vital weapon systems organically and the remaining workload is performed by contract.<sup>3</sup> There are many exceptions to this general policy and the needs of the service dictate which workloads are to be maintained organically and which will be performed contractually. For fiscal years 64 and 65 approximately 50 percent of depot maintenance support was provided by contractors.<sup>4</sup>

Air Force maintenance and overhaul contracts cover a wide range of non-personal service contracts varying in complexity by types. Some of these types of contracts are: (1) Inspect and Repair as Necessary (IRAN), (2) Aircraft Modification, (3) Drop In Maintenance, (4) Engine Overhaul, and (5) Repair of components and accessories usually included in the term Master Repair Schedule (MRS) items.

The IRAN contract usually calls for a teardown and disassembly followed by an inspection. Definite, detailed

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<sup>2</sup>U.S., Department of Defense, Policies Governing the Use of Commercial and Military Resources for Maintenance of Military Materiel, DOD Directive 4151.1 (Washington, D.C.: U.S. Government Printing Office, 28 July 1960), p. 5.

<sup>3</sup>U.S., Air Force Logistics Command, Air Force Systems Command, Contract Maintenance, AFLCR 65-1/AFSCR 84-8 (Wright-Patterson AFB, Ohio: 15 October 1965), p. 2.

<sup>4</sup>U.S., Air Force Logistics Command, Maintenance Engineering 1966, A Report Prepared by AFLC (Wright-Patterson AFB, Ohio: March 1965), p. 60.

specifications are normally written so that each step of the inspection phase is readily determinable and is covered by the fixed price in the contract. Since the concept of IRAN assumes that all necessary work will be performed by the contractor, the question of whether the work to be performed is "over-and-above" that required in the fixed price portion is extremely important. A more detailed discussion of work specifications and "over-and-above" work can be found later in this chapter.

Aircraft modification contracts usually are written for specific alterations concerned with safety of flight, essentiality for mission accomplishment, reduction of maintenance manhours, and compatibility with other modifications, both proposed as well as those already approved.

Drop-in aircraft maintenance contracts usually cover unscheduled but necessary overhaul and maintenance work. Finally, contracts for engine overhaul and repair of components and accessories are written to cover the contract maintenance of the specific items and components as distinguished from the entire aircraft or major equipment. The variety of overhaul and maintenance contracts discussed here are necessary because of such things as the ever changing state of the art and the inability to design and produce materiel that is completely free from defect.

#### Contractual Concept

The USAF contracts for commercial overhaul and maintenance of equipment within the framework and intent of

current DOD directives and instructions. Competition is obtained whenever feasible and award made to the contractor submitting the proposal to the best advantage of the Government, price and other factors considered. A fixed price material reimbursement type contract is the contractual instrument most extensively used. The contract is awarded to a competitively selected contractor for one year with an option for the Government to continue the contract for two additional fiscal years if the contractor has successfully performed during the initial period.<sup>5</sup> In recent years there has also been a trend to use FPMR type contracts with warranty clauses and performance and/or value engineering incentives.

For example, prior to 1963 the majority of USAF contracts for engine overhaul were on a fixed-price basis. An AF study found that with this type of contract the Government was placed in the position of having to enforce quality through the medium of quality control procedures or other sampling means offered by the contractor; the contractor received the same fixed price whether the quality of performance was of marginal or top quality. The study group concluded that a contractual concept should be developed which (1) would induce contractors to eliminate early engine failures, (2) grant the Government the unequivocal

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<sup>5</sup>U.S., Air Force Logistics Command, Maintenance Engineering Operation and Management, AFLCM 66-2, Part Nine, Chapter 3 (Wright-Patterson AFB, Ohio: 1 July 1965), p. 9-3-1.

right to have engines reworked which did not perform for a minimum time, and (3) provide an incentive reward for engines which performed satisfactorily in excess of a specified number of hours. Analysis of actuarial data on the R-4360 and the R-3350 engines for the six month period October 1963 - March 1964 showed that use of the quality-incentive contractual concept would result in a net cost avoidance under the R-4360 program projected to amount to \$619,790.47 and under the R-3350 program of \$85,138.79.<sup>6</sup>

An evaluation of the effectiveness of the use of warranty and incentive provisions in overhaul and maintenance contracts was made approximately one year ago. The report included actuarial data gathered through 31 March 1965 on 4,781 reciprocating engines which had been overhauled under fiscal years 63 and 64 contracts. The audited and validated figures showed a net savings to the Government of \$1,106,056.73, which included the additional contractual cost of the warranties and bonuses paid to the contractors. Additionally, 137 engines were reworked under the warranty provisions of the contracts, contributing an additional cost avoidance to the Government of \$434,700.01. Total net savings then, were in the amount of \$1,540,846.74.<sup>7</sup>

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<sup>6</sup>U.S., Sacramento Air Materiel Area, Quality-Incentive Contractual Concept Report (Kelly AFB, Texas: 31 March 1964), pp. 3-8.

<sup>7</sup>Information obtained from the vice-chairman of the Procurement Committee, San Antonio Air Materiel Area, on 9 August 1966. The report referred to was submitted to Headquarters, USAF, for transmittal to DOD.

The quality-incentive concept is now used almost exclusively for engine overhaul contracts. Data gathered on individual engine overhaul programs is evaluated by the cognizant AMA and is a key factor considered during negotiations of new engine overhaul contracts.

There has also been an effort made to include warranty clauses in IRAN contracts. There is a FY 67 contract that does contain this provision. There are certain aspects of establishing contractor liability for work performed under an IRAN contract that are worthy of consideration. The nature of IRAN, i.e., inspect and repair as necessary, requires that the contractor perform an operational check on a component, accessory, instrument, etc., and if it is functioning properly and gives no indication of possible failure, no further work is required. Legal liability on the part of the contractor may be difficult to establish for equipment that was not worked on, was inspected and accepted by a government representative, and failed subsequent to delivery to the using command.

The differences between administering an overhaul and maintenance type contract and a supply type contract were mentioned in Chapter I. There are also contractual differences which are significant and should be considered in the selection of potential contractors. A study group established by Headquarters USAF thoroughly explored this subject and concluded that the most significant problem in contracting for IRAN and other contract maintenance work

is obtaining competition with confidence, i.e., the ability to properly identify fully qualified contractors versus marginal contractors and to keep the marginal contractors from being considered in the award of contracts. The following quotation from the Study Group's report is germane:

The criteria to be applied in determining total capability should give prime emphasis on past performance and experience, and financial stability. It should require adequate verification of the concern's ability to have available the required skills, facilities, and equipment and it should require the furnishing of sufficient data for Air Force personnel to determine the acceptability of management policies and the concern's proposed systems pertinent to production, quality assurance, property (GFP and CFE) controls including inventory controls and method of pricing.<sup>8</sup>

The above is considered essential in source selection for overhaul and maintenance type contracts. The Study Group further proposed a competitive solicitation on a two-step basis. The first step would evaluate a potential contractor's future ability to perform and the second step would request price proposals from those contractors determined to have met the established criteria. Present USAF contractual procedures encompass fairly extensive use of pre-award surveys and a limited use of the two-step method of solicitation. Current DOD instructions emphasize the importance of the use of pre-award surveys in determining the responsibility of prospective contractors. It is felt that the two-step method also has considerable merit and

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<sup>8</sup>Letter from Headquarters USAF (AFSPPCA), to AFLC, subject: "Iran Study Report," Washington, D.C., 21 May 1965, p. 12 of attachment.



perhaps, could be used more extensively to the advantage of the government.<sup>9</sup>

#### The Contractual Instrument

The majority of contracts for maintenance involve the fixed price materials reimbursable type. Some of the more significant sections of this type contract will now be discussed.

First, the most significant section of the instrument is the fixed price portion. This lists the general scope of work including quantities, unit prices and total prices for the services and supplies to be furnished by the contractor. Also included in this section would be a fixed price hourly labor rate that the Government would agree to pay on work that may be necessary as a result of the tear-down and inspection phase of the work statements. This negotiated hourly rate includes direct labor, overhead, indirect materials, general and administrative expenses and profit. This leads to the next section of the contract dealing with what is commonly called over-and-above work. Since it is not possible to completely anticipate the entire spectrum of work that must be accomplished as a result of the inspection and disassembly, an hourly labor rate is negotiated for this type of work that would be covered by a work request. With the hourly labor rate already set, the

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<sup>9</sup>U.S., Department of Defense, Defense Procurement Circular, Number 45 (Washington, D.C.: 24 June 1966), p. 2.

government contract administrator and the contractor must negotiate a man hour figure for the work request. If repetition occurs in a specific type repair, then standards, agreeable to all parties, should be set so that future work requests may flow through the system more efficiently. As more experience is gained in contract maintenance, more specific work areas and jobs should be included in the fixed price portion of the contract. It was the firm consensus of government personnel as well as contractor personnel interviewed by the writers that the more work covered under the fixed price portion, the more satisfied both parties were in the administration of the contract.

The work or performance specifications found in Appendix A of the contract includes the statement of work to be performed upon the equipment or materiel under contract for maintenance. It contains the definitions applicable to the maintenance to be performed, the various forms and reports to be used by the contractor, it defines the minimum capacity that a contractor must have for overhaul including a master repair schedule capability that would list certain components and assemblies that can most efficiently be overhauled and maintained during the specific contract period and finally, it lists all the applicable technical orders and directives applicable to the contract.

The next significant section of the contractual instrument is the supply information contained in Appendix B. Included in the supply information are definitions of

what is supplied as government furnished property (GFP) and what is contractor furnished property (CFP), material requirements list (MRL) information and instructions for preparation and updating of the MRL which is a list of the component parts and materials required in the repair of the end item, requisitioning procedures, disposal instructions for excess government property, and finally, disposition instructions concerning the completed assembly or end item.

The purpose of the MRL is to provide to the contractors overhauling or repairing an item the range and usage rates of parts and materials required to repair the item, for providing initial support, and for use as a requisitioning guide.<sup>10</sup> It is imperative therefore that the MRL be updated as required. This requirement is usually contained in the contractual document. Probably the most significant item of information on the MRL is the replacement or usage rate. This rate is determined by dividing the number of times an item is replaced by the maximum number of times it can be replaced. This percentage indicates the average frequency that an item is replaced during the maintenance of a specific unit of production.

Changes to the MRL are processed through a computer program to determine future requirements. A statistical test of significance formula is programmed into the computer in order that the actual replacement percentage (materiel

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<sup>10</sup>AFLCM 66-2, p. 5-10-1.

usage) may be compared with the standard replacement percentage. In the event significance is shown beyond the computed actual replacement percent and the standard replacement percent, the computed actual replacement percentage is suggested as the new standard.<sup>11</sup>

This procedure assumes that the last rate of consumption is the best predictor of future usage. It is felt that when significance is shown use of the moving average or exponential smoothing technique would give more reliable and realistic figures since it uses past data in varying degrees to predict future requirements. The number of periods used in the moving average would be determined by the relative importance attached to old versus new data. In exponential smoothing, weights are assigned to past usage data in indirect proportion to their age, the smoothing constant representing the degree of confidence in the particular data, i.e., old versus new data. A particular advantage of the use of exponential smoothing for computerized programs is the elimination of the necessity of carrying large lists of past data; all that is required is the current usage forecast, a smoothing constant, and the new actual usage figure.<sup>12</sup>

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<sup>11</sup>U.S., Air Force Logistics Command, AMC Production Control Manual, AFLCM 66-1 (Wright-Patterson AFB, Ohio: 3 June 1960), p. 1-6-4.5.

<sup>12</sup>Claude McMillan and Richard F. Gonzalez, Systems Analysis: A Computer Approach to Decision Models (Homewood, Illinois: Richard D. Irwin, Inc., 1965), p. 217.

### Post Award Coordination and Surveillance

The typical maintenance and overhaul contract finds the government committing itself to supplying GFP, special tooling, input of repairable units, technical order and technical data, providing a realistic and correct work statement, and retaining engineering cognizance. Failure on the part of the government to perform any of the above cited obligations in a timely manner will adversely affect performance, complicate contract administration, and normally result in increased costs to the government. It can therefore be seen the post-award coordination and surveillance does not only imply the monitoring of contractor performance but also implies that the government contract administration team insures that the government obligations are met. A description of some of the functional elements of the contract administration team follows.

Certainly one of the key men on the team is the contract administrator performing his task as ACO. He alone can obligate the government for over-and-above work, however he must rely heavily on his other team members, such as production personnel and quality assurance personnel. The overall responsibility of the contract administrator is to manage the assigned contracts to assure that the contractor's total performance is in accordance with his contractual commitments and that the obligations of the government are fulfilled. This management is conducted within the framework of delegated contracting officer responsibility and

authority including support of the buying organization.

Another functional area is that of quality assurance. Personnel on this part of the contract administration team are responsible to take a planned systematic pattern of government actions necessary to adequately determine that all quality requirements are met. These are the actions required to insure control of the quality and reliability of the product or work performed on the maintenance contract. They entail the evaluation, appraisal and verification of the adequacy of the contractor's quality control system. The quality assurance personnel verify the need for over and above work at the time of the inspection and forward this verification of the work request to the ACO for formal approval and obligation by the government.

The Industrial Specialist forms the nucleus of the production part of the contract administration team. His main task is to review production procedures, analyze contractor workloads, review production schedules and verify contractor manhours on work requests for over and above work. The production group is responsible to review and identify any conditions potentially threatening or actually delaying contract delivery or performance, as well as the prompt accomplishment or the initiation of action to achieve the most economical and timely solution to a problem in production scheduling or procedures.

Another man on the team is the Industrial Property Officer. Industrial property is defined as any contractor

acquired or government furnished property, including materials, special tooling, and industrial facilities furnished or acquired in the performance of a contract.<sup>13</sup> The property administrator reviews and approves the contractor's property and inventory control procedures, examines records maintained by contractors for government furnished as well as contractor acquired property.

The final increment of the post award coordination and surveillance phase is the acceptance by the quality assurance personnel and the turnover of the completed item to the using command. As a final check on the quality of the product being delivered to the Air Force, the using command is required to fill out an adequacy of Aircraft/Engine Quality report (AFTO Form 64). This form, if thoroughly and objectively completed in a timely manner, can be a very effective final quality check on the product received by the government. It advises the contractor of deficiencies in his performance, thus permitting initiation of timely, corrective action to preclude repetition of similar deficiencies.

#### Summary

AFLC performs a significant portion of its depot maintenance workload through the use of civilian contractors. A wide range of contracts are utilized covering areas from repair of components and accessories to full scale IRAN and

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<sup>13</sup>Project 60 Glossary, p. 139.

modification. A unique three year program is utilized in maintenance contracting, whereby a competitively selected contractor receives the award for one year, with an option for the government to continue the contract for two additional years if desired by the government.

The responsibilities for the USAF administration of the plant cognizance program for overhaul and maintenance has been delegated to AFLC. The organizational structure presently being utilized to manage this program will be discussed in the next chapter.



## CHAPTER III

### USAF ORGANIZATION FOR MANAGEMENT OF THE PLANT COGNIZANCE PROGRAM

#### Scope

This chapter reviews and analyzes the present USAF organizational structure and assignment of responsibilities for contract administration services of the plant cognizance program.

#### Discussion

AFLC is responsible for all depot level maintenance whether it is performed at organic Air Force facilities or by contract.<sup>1</sup> The latter function, formerly under the Air Force Systems Command, was transferred to AFLC during October 1965. The basic Air Force policy regarding contract maintenance is that the maintenance contractors, their skills and facilities, are considered to be an extension of AF resources and, as such, this method of maintenance will be afforded the same management emphasis as that applied to AFLC organic maintenance facilities.<sup>2</sup>

In recognition of the role of contract maintenance as an extension of the organic capability and also as a base

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<sup>1</sup> AFR 66-1, p. 3.

<sup>2</sup> AFLCR 65-1/AFSCR 84-8, p. 1.

from which to expand during emergencies, and, in order to achieve standardization in the overall plant cognizance program, the Oklahoma City Air Materiel Area (OCAMA) has been designated as the AFLC activity responsible for overall contract management supervision. Within OCAMA a Contract Management Branch (OCPOU) has been designated as the specific agency responsible for this function.<sup>3</sup>

At present there are thirteen (13) contractor plants actively engaged in the program. The contractors' performance at these locations is administered by eight USAF detachments comprised of military and civilian personnel. These detachments are, in some instances, physically located at the contractors' plants and, in others, within close proximity to the plants. Five of these detachments are assigned to administer one contractor's facility each, two are assigned to administer two contractors' facilities, and one detachment is responsible for four contractors' plants. Appendix I lists the USAF detachments and the respective plants under each detachment's cognizance.

All personnel assigned to a particular detachment are under the administrative and operational control of the Officer-In-Charge (OIC) of that detachment. In addition, the OIC is responsible for technical supervision of the performance of the administrative contracting officer (ACO),

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<sup>3</sup>Letter from Headquarters AFLC (MCG), to all Air Materiel Area Headquarters, subject: "AFLC Contract Administration of Maintenance," Wright-Patterson AFB, Ohio, 4 October 1965.

the industrial property administration function and clerical support. Technical direction of the flight test, production, and quality control functions is provided by the appropriate USAF AMA designated as the System Support Manager (SSM) and/or the Inventory Manager (IM) for a particular weapon system, component, or accessory. The AMA is also responsible for the manning associated with these functions.<sup>4</sup> The extent of the AMA's participation in the activities of the detachments varies in each individual case and is dependent on the relative portion of work in a specific plant under the technical cognizance of a particular SSM/IM to the work of other SSMs/IMs at that same plant. The June 1966 assignment of personnel by the AMAs to the detachments is attached as Appendix II.

The designation of responsibilities of the AMAs described above for the plant cognizance program was made on the premise that the SSM/IM AMAs would assume a more active role in the support of their workloads being performed in commercial plants by contract.<sup>5</sup> This emphasizes the overall responsibilities of the AMAs for the effectiveness of the repair program.<sup>6</sup> General overall guidance for the conduct of government surveillance of contractor

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<sup>4</sup>Letter from Headquarters AFLC (MCG), to all Air Materiel Area Headquarters, subject: "AFLC Contract Administration of Maintenance Contracts," Wright-Patterson AFB, Ohio, 22 November 1965, as amended 27 June 1966.

<sup>5</sup>Headquarters AFLC Letter of 4 October 1965, op.cit.

<sup>6</sup>AFLCM 66-2, p. 5-2-1.

performance is contained in AFLC letters of 4 October 1965 and 22 November 1965, however, during the course of research for this thesis, a number of instances were noted where specific guidance to USAF personnel involved in the program was either not clear or was non-existent. The position, responsibility, and authority of the OIC of a detachment are not clearly defined. Theoretically he is responsible for the overall performance of his detachment since this is inherent in the title "Officer-In-Charge." He is vested with the administrative and operational control of all personnel assigned to the detachment and yet the SSM/IM is assigned the responsibility for technical supervision of the flight test, production, and quality control functions. The interface between the OIC and the SSM/IM in these areas and the precise distinction between "operational control" and "technical direction" need to be defined.

The basic reason for the existence of the detachments is to insure that the interests of the Government are met in a timely and effective manner through efficient and economical performance by the contractor. An integral part of the duties of all personnel engaged in the various phases of contracting is to insure that private firms in pursuit of their objectives are serving what the Government considers to be its interests. Sound contract administration can make a vital contribution to this effort. Sound administration entails presenting to the contractor a unified position logically arrived at through thorough understanding of a

problem, analysis of alternative courses of action, consideration of trade-offs, and weighing of implications. The unified position represents the decision which, in the considered judgment of the decision-maker, most equitably safeguards the interests of the Government.

The ultimate source of overall authority for contract administration matters, in the opinion of the writers, must be the OIC since he is in the primary management position with access to information covering the numerous facets of administration of the contracts. The dialogue in the technical direction area between detachment and AMA personnel and between AMA personnel and contractors tends to vitiate the Government's position. Two specific instances were noted during the authors' visits to USAF detachments and contractors' plants which support this contention. One was the scheduling of a meeting for negotiating a follow-on contract without the knowledge of detachment personnel and the second was a personnel matter. Successful contractor performance of USAF projects in the plant cognizance program depends on the coordinated effort among the using command, the system support manager, the inventory manager, the activity executing the contract, the contract administration office, and the contractor.<sup>7</sup> It is incumbent upon all personnel concerned with execution of the program that they exercise the keenest judgment in their dealings with personnel of other activities in order to preclude or, at

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<sup>7</sup>AFLCR 65-1/AFSCR 84-8, p. 1.

least, minimize the possibility of misunderstandings. In the somewhat grey area between "operational control" and "technical direction" mentioned previously, guidance on the ultimate source of authority to resolve disputes should be defined.

Under present USAF procedure authority to take contractual action which legally obligates the fiscal liability of the Government is delegated by the procuring contracting officer (PCO) to the administrative contracting officer within areas concerned with administration of the contract, i.e., primarily approval of requests for over and above work. The OIC is normally not authorized to take contractual action. There have been instances where the OIC has functioned as both the OIC and the ACO but these have been the exceptions. In most cases then, the OIC is responsible for the administrative and operational control of the ACO. The extent of his authority to guide the efforts of the ACO is not clear since the OIC has no authority to act in areas that are basic to the functions of the ACO. There are examples where this arrangement offers no particular problem. One very noteworthy example was observed during the course of research where the OIC and ACO were both experienced, knowledgeable, and motivated individuals with a mutual respect for and understanding of the position and function of the other. Their cooperative effort led to complete harmony of purpose and endeavor. However, information obtained during research indicates there are situations where the OIC

desires to sign contractual correspondence and control decisions which the ACO feels are properly within his sphere of responsibility. It would appear then, that the working relationship of the OIC and ACO is dependent more upon the personalities involved than upon the authority vested in the two positions. In the opinion of the authors, since the primary purpose of the detachments is to administer Government contracts, it would be desirable to delegate latent, contractual authority to the OIC to be used when that individual feels it to be in the best interests of the Government.

Some of the present operating procedures tend to make the OIC's position untenable. A particular case in point is in the matter of evaluation of a contractor's past performance. Several instances were noted where the procuring activity, in analyzing the desirability of awarding a follow-on contract to the incumbent contractor, requested evaluations of the contractor's past performance from the Directorate of Materiel and Maintenance of the cognizant AMA and the ACO of the field detachment. Their favorable replies were cited in the justification for awarding the follow-on contract; no mention was made of contacting the OIC. The ACO plays a key role in administration of the contracts but, in the opinion of the authors, evaluation of a contractor's overall past performance is properly the responsibility of the manager of the field detachment, the OIC.

Several instances were noted where difficulties have arisen regarding supervision of personnel. These have been primarily in the quality assurance area where personnel assigned by different AMAs work in one plant or where the quality assurance supervisor of more than one plant supervises the efforts of personnel assigned by different AMAs. The responsibility and authority of supervisors, particularly in the quality assurance area, needs to be more clearly defined.

In reviewing the present organization for contract administration of the plant cognizance program and considering the problem areas noted during the research for this thesis, three alternatives are presented:

- 1) Assign the responsibility for each detachment to the AMA having the preponderance of work in a contractor's plant.
- 2) Assign overall authority to direct the entire effort of all detachments to one AMA, e.g., OCAMA.
- 3) Continue the present organizational structure with certain modifications designed to strengthen unity of purpose and effort.

Alternative 1 above has the obvious advantage of assuring that the dominant AMA has full authority and control of its work. It does not insure that management of the work under the cognizance of another AMA will receive the same emphasis as the management of the workload of the dominant AMA. It also decentralizes the overall control of



the plant cognizance program and would lead to a lack of standardization of policies and procedures.

Alternative 2 would standardize the operation but it would not achieve the very purpose of the assignment of the program to AFLC, i.e., a more active participation by each AMA. The following emphasizes the intended role of the AMAs.

1. This Command will assume responsibility for plant cognizance of twelve contract maintenance facilities recently assigned by DOD during October 1965.<sup>8</sup> These plants were assigned to this Command based on the premise that the SSM/IM AMAs would assume a more active role in support of their workloads being accomplished contractually.<sup>9</sup>

Alternative 3 assures full participation by cognizant AMAs and, since the program is under the overall responsibility of OCAMA, would lead to standardization of policies and procedures. The primary disadvantage is the grey area in the division of responsibility between the detachment OIC and the cognizant AMA for the efforts and direction of flight test, production, and quality assurance personnel. (Appendix III is a chart denoting the various lines of responsibility at a typical detachment.) A possible procedure which would tend to minimize friction and doubt would be to assign responsibility for overall performance of the detachment to the OIC. Technical direction and manning responsibilities would continue to be assigned to the cognizant AMA

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<sup>8</sup>One additional contractor facility was subsequently assigned by DOD to the USAF changing the total number of plants assigned to 13.

<sup>9</sup>Headquarters, AFLC letter of 4 October 1965, op. cit.

but any action taken by the AMA would be accomplished through the OIC. Points of disagreement between the OIC and the AMA, primarily in the personnel area, would be immediately resolved by the OIC subject to subsequent adjudication by AFLC when deemed appropriate and/or desirable by the cognizant AMA.

It is the authors' firm opinion that the field detachments would function most effectively as a coordinated team with each functional area complementing and assisting others. This can only be accomplished through each individual personally identifying himself with that organization. He should feel that he is an integral part of the detachment and not a distended arm of his technical AMA functioning as a separate entity.

It is felt this can readily be accomplished within the framework of the present organizational concept. Leadership must start with the OIC of the detachment. There should be no question that he is the manager of the organization with the responsibility and authority to plan, organize, direct and control the day-to-day activities of the personnel of the detachment. The AMAs should continue to provide technical direction and guidance for these are the AF organizations possessing the engineering talent and experience vitally necessary to support field personnel. There should be a clear understanding that the AMAs have the responsibility and authority for technical performance relating to their workload in a particular contractor's

plant and that management responsibility and authority rests with the OIC. The following quotation is illustrative of this relationship, "In the final analysis the SSM/IM must work with and share with the AFLC officer in charge the technical, production, supply support, and quality program responsibilities."<sup>10</sup> It is incumbent upon all to work toward the mutual benefit of the others.

#### Summary

Contract maintenance is considered to be an extension of AF resources and is afforded the same management emphasis as that applied to organic maintenance. Within the AFLC organization, OCAMA has been designated to supervise the program. The actual contract administration of contractors' performance is accomplished by eight USAF detachments located near the plants. The authors' opinion is that the present organizational lines of responsibility and authority need clarification.

Having completed the background discussion concerning the scope and organizational structure of the maintenance and overhaul program, the next chapter will be used to present an analysis of the data gathered during the research project.

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<sup>10</sup>Letter from Headquarters AFLC (MCG) to Oklahoma City Air Materiel Area, subject: "Management of AFLC Plant Cognizance Contract Maintenance Facilities," Wright-Patterson AFB, Ohio, 29 July 1965, Tab F.

## CHAPTER IV

### DATA ANALYSIS

#### Introduction

The primary means of gathering data concerning the contract administration of the AFLC plant cognizance program were two multiple choice questionnaires. This chapter presents the rationale behind the use of the questionnaires, the preliminary utilization of the responses in establishing the general parameters of investigative effort to be conducted through personal interviews, statistical validation of questionnaire data, the methodology used in testing the first research hypothesis, and an analysis of the data itself.

#### Discussion

From the inception of this research effort the authors felt that the basic objective of contract administration services and contractor personnel is the same, i.e., to deliver a qualitatively superior overhauled item at an economical price. It was felt that the areas causing the most significant problems in the conduct of the program were common to governmental and contractor personnel. It was initially determined that a method of identifying and isolating general problem areas would form the basis for

further investigation of the underlying causes of these difficulties. Analysis of these causes would lead to recommendations designed to improve the overhaul and maintenance program and/or would identify areas of sufficient scope and magnitude to warrant further study. This initial premise, i.e., the commonality of factors contributing to program problems, was evident throughout the course of this study.

#### The Research Questionnaire

The media used in establishing the specific areas of mutual concern were the two sets of questionnaires. One set of questionnaires was sent to all the Air Force field detachments for distribution to a representative group of personnel including the OIC, contract administrator, quality assurance, production, property, and flight test personnel. The second set of questionnaires was forwarded to all contractors engaged in the program and, as in the case of the government personnel directed questionnaire, distribution of the questionnaire was requested to the executive and administrative management level as well as to specific functional groups within the contractor's organization.

The questionnaire submitted to contractor personnel consisted of thirty-five questions. The first two questions were used to establish the level of management of the respondent and his tenure in the particular position. The third question identified the overall spectrum of a

contractor's workload. The remaining thirty-two multiple choice questions were pertinent to the major functional areas of the overhaul and maintenance program. Specifically, these areas are the interpretation and application of contractual requirements, administrative contractual requirements, the influence that the input of government furnished materiel has on a contractor's performance, production aspects, and the conduct of the quality control/assurance function. This questionnaire is included as Appendix IV.

The questionnaire submitted to government contract administration services personnel comprised forty-two multiple choice questions. The first thirty-five covered the identical areas as did the contractor questionnaire and the remaining seven were designed to ascertain if AFLC internal management procedures and efforts were adequate and consistent and the possible impact that workload and manning levels have on the surveillance of the program. This questionnaire is included as Appendix V.

The overall reception of the questionnaire was particularly gratifying, especially the large number of early responses. This initial influx of responses permitted a broad, preliminary analysis to be made which served to identify the general areas to be further developed during the field trip made by the authors to four of the eight Air Force field detachments, eight of the thirteen contractors' plants, and the Oklahoma City Air Materiel Area (OCAMA). A total of fifty-two responses were used in establishing

the parameters for the personal interviews. These interviews were conducted with governmental and contractor personnel at three significant levels of management, i.e., executive and administrative management, property management, and production and quality control/assurance management.

#### Statistical Validation of Questionnaire Data

It was particularly desired that respondents be motivated to objectively complete the questionnaires as free from bias as possible. To further this objective, no attempt was made to identify individual responses with specific detachments or contractors. However, from the number of responses which were voluntarily identified and from information obtained by telephone and personal interviews, it is considered that the replies received are truly representative of the universe sampled.<sup>1</sup> Respondees were invited to submit comments concerning any area associated with the overhaul and maintenance program. The number of comments received and their depth of thought have proven invaluable in the development of an insight into the varied aspects of aircraft and component overhaul and maintenance in general and to the overhaul and maintenance of USAF

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<sup>1</sup>The term universe is used in its statistical sense, i.e., representing the total population which in this case was all the USAF Detachments and all the contractors engaged in the plant cognizance program. Chris A. Theodore, Applied Mathematics: An Introduction, Mathematical Analysis for Management (Homewood Illinois: Richard D. Irwin, Inc., 1965), p. 5.

aircraft, components, and accessories in particular. This information was extensively used in the analysis presented in Chapter 5. The individual responses are in the possession of the authors.

### Methodology

As responses to the questionnaires were received, the data was converted into numerically coded responses and keypunched into standard 80 column general purpose punch cards. A general program, available at the Computer Center, School of Systems and Logistics, Air Force Institute of Technology, was used with the International Business Machine 1620 Data Processing System to present the replies to the questionnaires in matrix form showing the responses by levels of management. Off-line computation of the raw tallies to percentages was then accomplished for ease in comparison of the data for the reader. The machine listing is shown as Appendix VI.

### Spearman Rank Correlation Coefficient

The underlying premise of this thesis is that there is a high degree of correlation or association between the government's problems in administering overhaul and maintenance contracts, and the contractor's difficulties in performance under the contract. In order to establish the degree of correlation or association between the two areas of difficulty, a non-parametric statistical test for measurement of correlation was utilized. The statistical



test selected was the Spearman Rank Correlation Coefficient ( $r_s$ ). This particular measure of correlation requires that responses to the questionnaire be assigned values or ratings in at least an ordinal scale so that the responses under study may be ranked in two ordered series.<sup>2</sup>

In observing the level of measurement attained in the questionnaires, the possible responses to each question are considered to be in groups of equivalence classes and the relation "greater than" holds for all pairs of classes. For example, occasionally is greater than rarely, frequently is greater than occasionally, and very frequently is greater than frequently. The requirement that at least an ordinal scale of measurement be attained for proper use of the Spearman rank correlation coefficient test<sup>3</sup> is therefore fulfilled.

In order to rank the questions in the order of their relative significance toward contributing to program problems, weights were assigned to each possible response. This provided a method of scoring responses for use in ranking the questions and it does not alter the relation of the responses to the questions since this transformation does not change the order of the classes of the individual question responses.<sup>4</sup>

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<sup>2</sup>Sidney Siegal, Non-Parametric Statistics from the Behavioral Sciences (New York: McGraw-Hill, 1956), p. 202.

<sup>3</sup>Ibid., p. 202.

<sup>4</sup>Ibid., p. 25.

A weight of four (4) was assigned to the response that indicated the most significant effect on causing problems, three (3) was assigned to the next most significant, two (2) to the next, and a weight of one (1) was assigned to the least significant. Based on this criteria the response "rarely" could be assigned a weight of four if the question was worded in such a manner that it indicated an unfavorable condition, or it could be assigned a weight of one if it indicated a favorable condition. The percentage of responses for each of the four choices was then multiplied by the weight assigned to obtain a score for each choice. The total score indicates their summation. The total scores were then ranked with the highest score assigned a rank of one (1). The computations of scores are included as Appendices VII and VIII and the resultant ranking of the questions in relation to their problem causing effect is shown in Table 1.

The computation of the Spearman rank correlation coefficient,  $r_s$  (rho), is presented below.

$$r_s = 1 - \frac{6 \sum_{i=1}^N d_i^2}{N^3 - N}$$

$$r_s = 1 - \frac{6 (2339)}{32^3 - 32}$$

$$r_s = .5713$$

In interpreting this  $r_s$  value, the null hypothesis ( $H_0$ ) is stated that there is no association between the problems experienced by contract administration services and

TABLE 1  
RANKING OF AREAS OF DIFFICULTY ENCOUNTERED  
BY CONTRACTORS AND GOVERNMENT  
CONTRACT ADMINISTRATION PERSONNEL

QUESTION NUMBER	RANK		$d_i$	$d_i^2$
	GOVERNMENT	CONTRACTOR		
3	6	22	-16	256
4	17	18	- 1	1
5	1	20	-19	361
6	21	7	+14	196
7	5	1	+ 4	16
8	11	3	+ 8	64
9	18	27	- 9	81
10	4	4	0	0
11	24	14	+10	100
12	12	10	+ 2	4
13	26	32	- 6	36
14	25	16	+ 9	81
15	30	19	+11	121
16	2	9	- 7	49
17	16	11	+ 5	25
18	9	5	+ 4	16
19	29	25	+ 4	16
20	27	26	+ 1	1
21	28	21	+ 7	49
22	31	31	0	0
23	15	2	+13	169
24	19	24	- 5	25
25	23	28	- 5	25
26	13	17	- 4	16
27	22	8	+14	196
28	8	15	- 7	49
29	14	12	+ 2	4
30	7	13	- 6	36
31	20	23	- 3	9
32	3	6	- 3	9
33	10	28	-18	324
34	32	30	+ 2	4
				$\Sigma d_i^2$ 2339

contractor personnel. The prime consideration then is at what value of  $r_s$  (degree of association) is it determined that the computed value did not occur by chance but, rather, indicates a degree of association at an acceptable probability level.

Table P of Nonparametric Statistics for the Behavioral Sciences<sup>5</sup> lists the critical values of  $r_s$  at probability levels of 99 percent and 95 percent. If the computed value of  $r_s$  equals or exceeds the table value, the computed value is significant at this probability level. The table lists the  $r_s$  values for sample sizes up to 30. The  $r_s$  table value at the 99 percent probability level for 30 observations is .432. The number of observations in this research paper is 32 and extending the table to this number indicates a table value of  $r_s$  of .417 at the same 99 percent probability level. Since the computed  $r_s$  value of .5713 is higher than the table value, the null hypothesis is rejected and it is concluded that there is a significant degree of association between the problems experienced by contract administration services and contractor personnel.<sup>6</sup>

#### Median Test

A further test of the validity of this conclusion was made through application of the median test. This is a method of testing whether two independent groups, in this

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<sup>5</sup>Ibid., p. 284.

<sup>6</sup>Ibid., p. 111.

TABLE 2  
RANKING OF QUESTIONNAIRE RESPONSES  
FROM CONTRACTOR AND GOVERNMENT PERSONNEL

RANK	GOVERNMENT PERSONNEL		CONTRACTOR PERSONNEL	
	SCORE	QUESTION NO.	SCORE	QUESTION NO.
1	245.7	5	295.0	7
2	239.6	16	282.6	23
3	238.8	32	280.0	8
4	230.7	10	279.1	10
5	229.3	7	274.0	18
6	226.3	3	255.0	32
7	225.8	30	234.7	6
8	222.3	28	228.0	27
9	219.8	18	225.9	16
10	215.5	33	223.3	12
11	214.1	8	214.4	17
12	211.7	12	212.4	29
13	211.0	26	210.2	30
14	210.6	29	210.1	11
15	207.9	23	209.0	28
16	206.6	17	207.2	14
17	202.8	4	199.8	26
18	199.9	9	196.1	4
19	198.4	24	196.0	15
20	197.1	31	192.0	5
21	191.0	6	188.6	21
22	186.8	27	185.0	3
23	186.7	25	180.0	31
24	181.5	11	171.5	24
25	172.8	14	166.5	19
26	166.7	13	163.1	20
27	163.5	20	156.8	9
28	162.0	21	156.0	25
29	156.0	19	153.9	33
30	152.0	15	153.9	34
31	143.4	22	150.1	22
32	128.7	34	148.1	13

case contract administration services and contractor personnel, differ in central tendencies. The median test tests the null hypothesis that two independent groups have been drawn from populations with the same median.

Table 2 lists the ranking of the scores of the questionnaire responses. The median of the combined scores is 204. For samples from populations whose media is the same, about half of each group's scores would be above the combined median and about half would be below.<sup>7</sup> The number of individual scores above and below the combined median is shown in Table 3.

TABLE 3  
MEDIAN TEST: SCORES OF AREAS  
OF DIFFICULTY ENCOUNTERED BY  
GOVERNMENT AND CONTRACTOR PERSONNEL

	<u>GOVERNMENT PERSONNEL</u>	<u>CONTRACTOR PERSONNEL</u>
No. of scores above the combined median	16	16
No. of scores below the combined median	16	16

Since exactly half of each group's scores fall above and below the combined median, it is concluded that the two groups are from populations with the same median and that therefore, there is a significant association between the problems experienced by government and contractor personnel.

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<sup>7</sup>Ibid., p. 111.

Additional support of this conclusion is presented by application of the  $x^2$  (chi-square) test to test the null hypothesis.

$$x^2 = \frac{N \left( \frac{[AD-BC]}{N} - \frac{1}{2} \right)^2}{(A+B)(C+D)(A+C)(B+D)}$$

where: N = 64 (total number of combined observations)

A = figure in northwest quadrant of Table 2

B = figure in northeast quadrant of Table 2

C = figure in southwest quadrant of Table 2

D = figure in southeast quadrant of Table 2

$$x^2 = \frac{64 \left( \frac{[16 \times 16 - 16 \times 16]}{64} - \frac{1}{2} \right)^2}{(32)(32)(32)(32)}$$

$$x^2 = .063$$

Table C of Nonparametric Statistics for the Behavioral Sciences<sup>8</sup> lists the critical values of  $x^2$  at various probability levels. If the computed value of  $x^2$  is greater than the table value, the null hypothesis is rejected. The table value of  $x^2$  at the 99 percent probability level is 5.41. Since the computed value of .063 is less than the table value, the null hypothesis that the two independent groups have been drawn from populations with the same median is accepted.

The two nonparametric tests utilized above indicate that, at the 99 percent probability level, there is significant agreement in the attitudes in general between the way

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<sup>8</sup>Ibid., p. 249.

governmental and contractor personnel view problem areas in the plant cognizance program.

#### Corner Test of Association

The corner test of association was used to test the association of one variable with another in the extreme cases, i.e., the areas causing the most significant and the least significant problems. The test basically ignores the mass of data near the center of a scatter diagram and addresses itself to those observations at the periphery.<sup>9</sup> The methodology applied in utilizing this test may be found in Statistical Inference by Helen M. Walker and Joseph Lev. Figure 1 is the scatter diagram of the question numbers with the ranking of governmental personnel responses plotted on the X-axis and the ranking of contractor personnel responses plotted on the Y-axis. The test depends primarily on the extreme observations and upon the degree to which data are concentrated at diagonally opposite corners.<sup>10</sup> Data plotted on the diagonal close to the opposite corners are most significant. The southwest quadrant of Figure 1 represents the most significant problem areas, while the northeast quadrant represents the most significant problem free areas.

As mentioned earlier, a descending order of ranking of questionnaire responses was used with the number one

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<sup>9</sup>Helen M. Walker and Joseph Lev, Statistical Inference (New York: Henry Holt and Company, 1953), p. 447.

<sup>10</sup>Ibid., p. 449.



assigned denoting the most significant cause of problems. This being so, a glance at Figure 1 indicates that question 10 is the most significant and question 22 is the least significant problem area. Question 10 queried respondents as to how often late receipt of government furnished property adversely affected production schedules. Question 22 concerned how often production is delayed because of the inability to use substitute materials for category 3, logistic support items. Lack of effective GFP support is the major problem and substitution of category 3 material the least significant problem.

A level of significance for the corner test of association may be determined through a method of counting the relative positions of the data plots. Details of the methodology may be found in Statistical Inference. For a number of observations greater than or equal to 10, the null hypothesis of independence is rejected at the 1 percent level if an  $r$  value of more than 14 is attained.<sup>11</sup> An  $r$  value of 15 was obtained in the actual test of the research data. The null hypothesis is rejected and it is concluded that, at the 99 percent probability level, there is an association especially in the extreme cases.

#### Summary

Data gathered through the use of two questionnaires was tested for correlation and was found to have a

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<sup>11</sup>Ibid., p. 448.

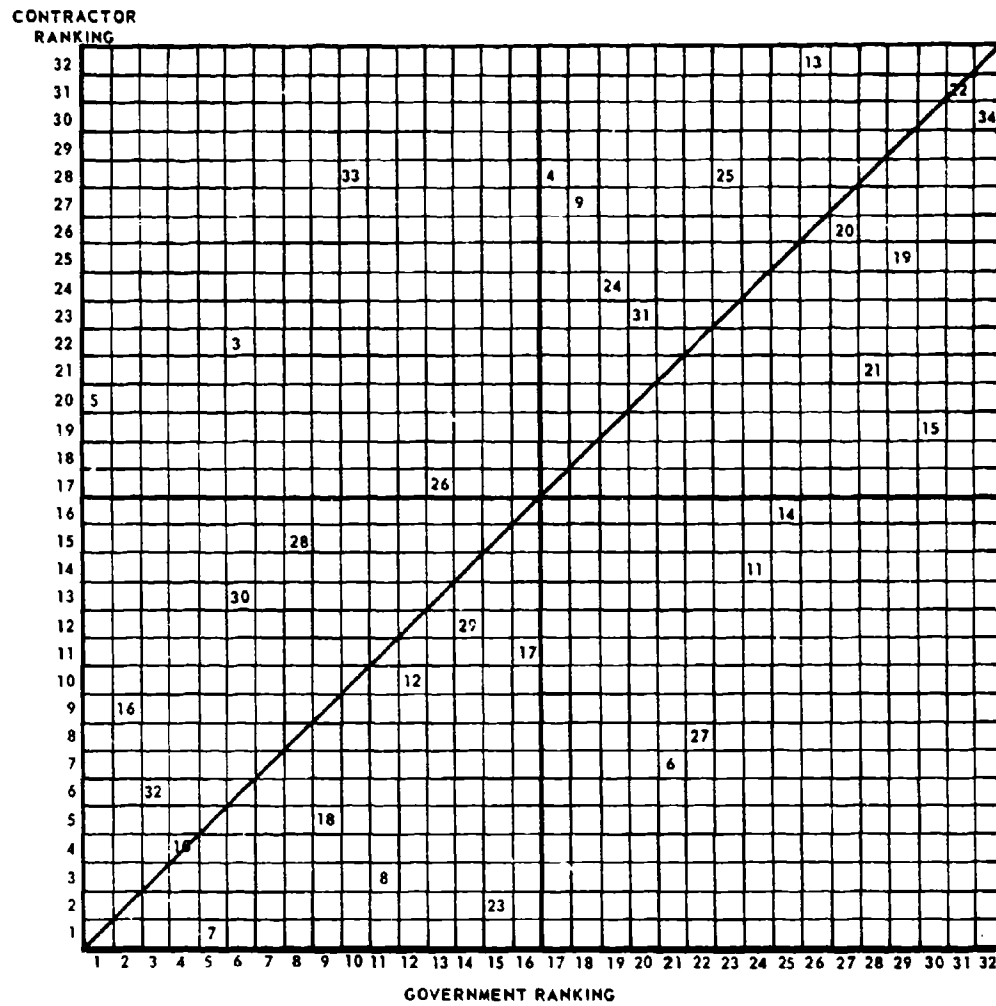


Fig. 1.--Corner Test of Association in the Extreme Cases

significant correlation between the difficulties encountered by the government contract administration personnel and the contractor. The particular tests used were the Spearman rank correlation coefficient test and the median test. Having established the existence of a significant correlation, then the utilization of the corner test of association indicated the areas of greatest concern to both the government and the contractors is the lack of effective GFP support. This and other significant problem areas will be discussed in the following chapter.

## CHAPTER V

### DISCUSSION AND ANALYSIS OF PROBLEM AREAS IN THE AFLC PLANT COGNIZANCE PROGRAM

#### Scope

This chapter presents a detailed discussion of the various problem areas encountered in the contract administration of maintenance and overhaul contracts under the AFLC plant cognizance program. The discussion will develop around the statement of the hypotheses as they were presented in Chapter I. The first diagnostic hypothesis stated: "That there is a significant correlation between the basic causes of contract difficulties experienced by government contract administration services personnel and those difficulties experienced by contractors." The discussion and data presented in the previous chapter corroborate this hypothesis. Both the Spearman rank correlation coefficient test and the median test were utilized and indicate the significant correlation between the problems encountered by the two groups of personnel. The corner test of association denoted that GFP support is the most extreme area of mutual concern to governmental and contractor personnel.

The second and third hypotheses will be presented for test primarily on the basis of logic by analysis of data

gathered during research consisting of personal interviews and interpretation and analysis of questionnaires including statements made by the respondents in the additional comments section of the questionnaire. The general areas of discussion in this chapter are: (1) Materiel support of the program, including government furnished property, the composition and utilization of the material requirements lists, the effect of non-available GFP, and the funding of non-available centrally procured items; (2) Work specifications and work requests, including the use and determination of what is considered fixed price and what is considered over and above, the establishment of standards based on previous repetitive work requests, the work request procedures utilized in the program, and the use of AFM 66-1 data to update future work specifications; and (3) The quality assurance aspects, including a discussion of the applicability of MIL-Q-9858A and MIL-I-45208A to maintenance and overhaul contracts, the need for an updated quality assurance manual that is oriented to the maintenance and overhaul function, and the utilization of the AFTO Form 64 information.

#### Materiel Support of the Overhaul and Maintenance Program

One of the basic and dominant factors affecting the effectiveness, efficiency, and economy of the overhaul and maintenance program is the manner in which the materiel support function is carried out. This encompasses the scheduling and receipt by the contractor of aircraft, components, and accessories as well as the timeliness of the

delivery and the physical condition of repair parts.

In the conduct of the plant cognizance program, the USAF commits itself to supply a number of items which are required by the contractor to accomplish the overhaul and maintenance requirements of the contract. Governmental action then becomes an active condition of contractor performance.<sup>1</sup> The manner in which the government's materiel support obligations are met directly influence contractor production schedules. This fact is recognized and emphasized in Air Force directives relating to overhaul and maintenance by contract, as illustrated by the following: "Particular emphasis should be placed on GFP requirements, since past experience has shown that this area is critical to satisfactory contractor performance."<sup>2</sup> One of the nation's leading aircraft manufacturing firms in referring to its maintenance programs states that the proficiency attained by any aircraft maintenance program is directly related to the adequacy and the continued effectiveness of its materiel support program.

During the course of research conducted for this thesis, the principal area causing significant problems to both contract administration services and contractor personnel was determined to be a lack of effective GFP support.

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<sup>1</sup>U.S., Department of Defense, Defense Procurement Handbook, DSAH 4105.1 (Washington, D.C.: 1965), p. I-19.

<sup>2</sup>U.S., Air Force Logistics Command, Preparation of Maintenance Contract Appendices, AFLCM 65-6 (Wright-Patterson AFB, Ohio: 16 July 1965), p. 1-6.

Deficiencies in the execution of the government's obligations were found to exist in both the timeliness of receipt of GFP and in its physical condition when received at a contractor's facility.

The responses to the questionnaires indicate the degree of relevance of GFP support to program problems. In answer to question 10, 42.7 percent of the governmental respondents stated that late receipt of GFP adversely affected production schedules either frequently or very frequently. In answering the same question, 58.6 percent of the contractor personnel chose frequently or very frequently. The answer to question 18, which is closely related to question 10, indicates 38.2 percent of the government respondents chose frequently or very frequently and 51.8 percent of the contractor respondents selected these same answers. In analyzing responses to these two questions, a reasonably close consistency is noted in the replies received from both governmental and contractor personnel.

Responses to question 12 indicate that 28.6 percent of the governmental respondents and 30.0 percent of the contractor respondents said that GFP is frequently or very frequently received in an unserviceable condition.

From a review of the comments received with a number of the questionnaires, this condition has existed for some time. The personal interviews fully corroborate this condition. The notation "GFP support is a major problem" consistently appears throughout the authors' field trip notes.

Numerous examples were cited where the lack of effective GFP support adversely affected production schedules. One particular instance is narrated. A contractor's production line was stopped in June 1966 because of the lack of a very basic component; supply from AF assets could not be made until late September 1966. The contractor was given authority to locally procure a sufficient number of components to use during the interim period. The required part was obtained on the open market and production was resumed.

Lack of effective GFP support was also noted as a major problem in the Hq USAF "Study of IRAN Contracting."<sup>3</sup>

The lack of GFP support also has a detrimental effect on contractual funding. Provision is made in the contract for funding parts which were originally designated as GFP but which were subsequently changed to CFP. The funds allocated in the basic contract for this purpose are, however, limited and represent a relatively minor portion of the funds cited. Observations made during research and comments received indicate that this amount is rarely sufficient to cover the actual requirements. This condition also has prevailed for a considerable period of time. Appendix IX is a copy of a letter dated 3 March 1960 from a contractor to the Chief, New York Air Procurement District, expressing his appreciation for the assistance rendered by two governmental contract administration services personnel

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<sup>3</sup>Hq USAF letter "IRAN Study Report," op. cit., p. 15.



in the area of funding items changed from GFP to CFP. The governmental personnel, in addition to resolving the immediate problem, had proposed a procedure of funding for these additional requirements quarterly on the basis of a projection of anticipated requirements. As far as could be ascertained by the authors, this recommendation was never adopted since the funding of these requirements is still a problem. This matter was mentioned by a number of governmental and contractor personnel during the personal interviews. One anonymous respondee with the title "President and General Manager" submitted the following comment:

Funding for both severable and inseverable "over and above" work and for purchase of materials is not usually adequate. Funds are not provided on a forecasted programmed basis as they should be. In many cases they are provided after the contractor has performed the work.

The types of aircraft and components furnished as input to the contract overhaul and maintenance program have been in the Air Force inventory for a considerable number of years. During this time a wealth of information has been gathered and collated which could be used to reasonably forecast requirements and to fund on this basis. Funding on a programmed basis would eliminate, or at least, alleviate the present practice of proceeding with necessary work without contractual coverage. This problem is closely allied to the funding problem associated with work requests which will be discussed in a subsequent section of this chapter.

A review of current AF instructions and directives indicated that the basic cause of the lack of effective material support lies in the implementation of existing procedures rather than in a lack of guidelines. The key document in the material support area is the material requirements list (MRL). The MRL is used by the SSMs and IMs in the preparation of Appendix B to maintenance contracts.<sup>4</sup> The primary purpose of the MRL is to furnish to the contractor the range and usage rates of parts and materials required to repair an item, for providing initial support, and for use as a requisitioning guide.<sup>5</sup> The contractor then uses the range and usage rates for inventory control purposes. The MRL is updated at six month intervals. A pending change to this reporting frequency, designed to provide more current data, recommends that the MRL be submitted every three months.<sup>6</sup> The responsible AMAs use the MRLs to establish reorder points and reorder quantities.

Of particular concern in this study is material categorized on the MRL as GFP which is defined as follows:

Government Furnished Property (GFP). Property in the possession of, or acquired directly by, the government and subsequently delivered or otherwise made available

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<sup>4</sup>U.S., Department of the Air Force, U.S. Air Force Supply Manual, AFM 67-1 (Washington, D.C.: 1 July 1962), Vol. III, Chap. 5, p. 5-1.

<sup>5</sup>AFLCM 66-2, p. 5-10-1.

<sup>6</sup>This information was obtained during an interview with AFLC personnel on 19 July 1966.

to the contractor. Included is government furnished material such as centrally procured (CP) and DSA items and government furnished equipment.

From this very brief review of the content and use of the MRL, it is seen that it can be a powerful instrument for insuring effective material support when used properly and updated in a timely manner. It is used to provide automatic initial support to a new contractor,<sup>7</sup> changes in the MRL are used to refine reorder levels and quantities, and items are added and/or deleted as experience dictates. A well-prepared MRL, properly used by the AMAs for inventory control purposes, insures that a contractor receives initial GFP support in a timely manner. It is then equally important that the MRL be updated by the contractor to truly reflect actual usage rates. If changes to the MRL are not made as experience indicates, invalid figures are used for forecasting requirements with consequent overages or shortages of material, both of which are costly.

From comments received with the questionnaires and from personal interviews it appears that the MRL is not being adequately screened by the responsible AMAs prior to initial award of a contract. The question was asked of a number of governmental and contractor personnel whether or not the MRL, after screening, was annotated to indicate status of availability of material. The unanimous reply was that they were not annotated in any way but rather were

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<sup>7</sup>AFM 67-1, Vol. III, Part One, Chapter 5, p. 5-4.

received in a manner reflecting that the requirements of the MRL could be met. Subsequent, non-support of a number of items indicates definite shortcomings in the material screening process. Improper initial screening then leads to invalid data on which to base reorder levels and quantities. This is reflected in the number of follow-on requisitions submitted by contractors which are returned "Not In Stock."

There have been instances where an MRL has not been furnished to the contractor but rather the contractor has been required to prepare the initial MRL. A forthcoming change to AFLCM 66-2, however, will establish parameters which will limit this to exceptional cases.

In an effort to significantly reduce inaccuracies in inventory control data, AFLC has recently initiated action to install a mechanized system with the Sacramento AMA as the central data processing and storage bank. The purpose and requirements of this system, known as the Master Materiel Support Record (MMSR) System, are quoted as follows:

2. MMSR Management. One of the major logistics problems that has confronted the AF is that of maintaining compatibility between what has been procured and that required by the using activities. One phase of this problem has been the difficulty in maintaining current records as to what changes have been made in the range and rates of usage of items selected during source coding. Because of the constant changes and adjustments being made in the product improvement area, provisioning actions are continuously being updated to reflect new requirements. The job of maintaining current records of the initial action and subsequent adjustments create a few difficult problems.

3. Requirements for a Mechanized System. Experience has proven that we must have a flexible mechanical system if we are to maintain an accurate record of provisioning source coding actions. This mechanical system must also be capable of being updated as changes are found necessary. These changes may emanate from a number of sources. One of the major areas is engineering changes as a result of product improvement. These changes will often require new items to be provisioned and at the same time make obsolete a number of items. Because of the complicated design of many AF items, material will be subject to engineering redesign during the complete cycle of the item. Many changes will also be necessary to reflect changes resulting from cataloging actions (e.g., source codes, ERRRC codes, etc.) and usage rates as end items become older.<sup>8</sup>

The MMSR system is designed, at present, to accept and process data from both organic depot level repair facilities and contractor facilities. An updated MRL is the input to the system from the contractor. The system when fully implemented has an excellent potential but it too is dependent on the validity of the input data and the method of utilization of the output data.

During the course of interviews with AFLC personnel, it was noted that there is no automatic distribution of output data by SMAMA. The AMA responsible for a particular item or component must specifically request information on that item. This has resulted in the AMAs, at times, using outdated MRLs for inventory control purposes. It is felt that an automatic distribution on a periodic or as occurring basis should be made to the responsible AMAs.

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<sup>8</sup>U.S., Air Force Logistics Command, Master Materiel Support Record (MMSR) D049 IK1 (Wright-Patterson AFB, Ohio: 23 May 1966), p. 1-2.

A significant by-product of the MMSR system is the Component Item Review List. This document lists every end item that a component item is used on, and it shows a breakdown of the end item by assembly, sub-assembly, and component. Some criticism was noted during the authors' field trip that indicates deficiencies in the screening of excess lists, specifically items had been processed through disposal which were needed in the overhaul and maintenance program. Use of the Component Item Review List will facilitate screening by not only identifying items to active programs but will also permit screening through the next higher assembly; e.g., if a particular part is in short supply, it may be that there is an adequate stock of the next higher assembly and it may be more feasible at the time to use that assembly.

Significant deficiencies in the condition of the receipt of GFP were mentioned earlier. An AFLC Inspector General report stated that in a recent audit approximately 25 percent of GFP shipped as serviceable items were found, upon receipt and inspection, to actually be unserviceable.<sup>9</sup>

Current AF instructions generally specify one hundred percent inspection of serviceable materiel prior to shipment. The applicable criteria is quoted below:

g. One hundred percent inspection action, as outlined in paragraphs 6g(1) and (2) will be required on all supply transactions resulting in the shipment of

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<sup>9</sup>This was established by the research team during an interview with AFLC personnel on 19 July 1966.

serviceable materiel (MROs, RDOs, AF supply directives, etc.). Shipment made from AF base activities, as a result of RDOs, will be processed in accordance with paragraph 22b.

(1) The inspector will sign and/or stamp and date block EE on all copies of shipping document (DD Form 1348-1), indicating certification of those items approved for shipment, and insure that, all items selected are marked and tagged in accordance with the latest configuration of MIL-STD-129. Particular attention will be given to dated items to insure fulfillment of criteria prescribed by TO 00-20K-1. Based on the inspector's judgment, packaged items in original containers, adequately marked or bearing an authorized supply/maintenance inspector's tag, need not be opened for additional inspection as to identification or condition unless there is evidence of mishandling, damage to contents, error, intent to mislead the receiving activity; or specific instructions which necessitate opening of the individual item for detailed inspection.

(2) Items will be opened for inspection/reinspection, if necessary. In performing detailed inspection, the supply inspector will:

(a) Insure that items for MAP shipments (MAS and grant aid) meet serviceability standards outlined in AFR 65-9.

(b) Insure that all items; i.e., end items, spares, etc., are serviceable, that end items are complete, and that all components; i.e., fittings, couplings, hoses, etc., are serviceable and included in the shipment.

(c) Obtain the services of maintenance or refer materiel to maintenance for inspection and certification of serviceability of technical type items, end items, etc., when facilities or capabilities are not available in supply.

(d) Verify that the quantity selected for shipment agrees with quantity indicated in columns 25-29, DD Form 1348-1.<sup>10</sup>

A review of the above would indicate that receipt of serviceable materiel in an unsatisfactory condition would occur infrequently and then primarily the discrepancy would

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<sup>10</sup>AFM 67-1, Vol. I, Part Four, p. 5-7.

be concealed damage, corrosion and deterioration. This type of defect does account for a considerable portion of the overall number of defects but the number of items received at contractor's plants with clearly discernible defects or erroneously identified is considered to be significant enough to warrant further study. In addition, use of statistical sampling techniques should be considered in an effort to detect concealed damage or deterioration of packaged items.

#### Work Specifications

Appendices A and B of a maintenance contract provide the contractor with a description of the work, supply information, and schedule and procurement information. They govern the scope of maintenance, serve as a basis for competitive procurement, and provide a basis for cost allocation. The maintenance contract appendices are the most critical item in maintenance contract negotiations and the most frequent source of legal dispute.<sup>11</sup> The appendices along with the complete contract for maintenance and overhaul are prepared by the Directorate of Materiel at the AMA having responsibility for the end item. Since the appendices and their contents are so important to a full understanding of the problem, a complete description is inclosed.

#### APPENDIX A

The information contained in each Appendix A is essentially the same. General information is provided to

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<sup>11</sup>AFLCM 65-6, Section A, p. 1-1.



cover data, definitions, maintenance records, forms and reports, reporting requirements, scheduling, and security requirements if any. . . . Instructions are given on work requirements that are to be accomplished by the contractors. These instructions include procedures to be followed in handling, inventory and preservation. Information for overhaul, maintenance or modification is presented to cover technical data, cleaning, corrosion treatment, overhaul or maintenance requirements, special work instructions, finishing instructions, and instructions for final testing prior to Governmental acceptance. A listing of the applicable technical orders and directives is included.

#### APPENDIX B

Appendix B provides the contractor with general supply information, requisitioning procedures and instructions for disposition of excess Government property. It also includes instructions for preparation for delivery, special reports, and disposition of the completed end item.<sup>12</sup>

Since the contractor, under the fixed price portion, can only be expected to perform the work that is indicated in the work specifications, extensive care and effort must be made in preparation of these performance guidelines. As the quality of work specifications increase, better workload estimating ensues and consequently better pricing, which in turn has an overall result in lowering contract maintenance costs.<sup>13</sup> It is imperative that if the contract maintenance and overhaul program is going to be successful a continuous and steady concentration of effort must be spent in the area of work specifications improvement by the Air Force. Representatives of the using command, the contract management team and the buying organization of the AMA must put special

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<sup>12</sup>Ibid., p. 1-2.

<sup>13</sup>Hq USAF letter "IRAN Study Report," op. cit., p. 6.

emphasis on definitizing technical work specifications prior to their inclusion in a contract. Question 4 of the questionnaires addressed itself to the clarity or preciseness of the work specification. Of the respondents to this question, 25.4 percent of the government personnel and 25.9 percent of the contractors said that work specifications are rarely, or at the most occasionally, precisely delineated in the contract, indicating that more work is needed in the quality and clarity of these performance specifications. The analysis of the response by levels of management (Appendix VI), indicates that all levels consider this situation a problem.

The Air Force Manual 66-1 (AFM 66-1) data system is another source of information that is available to improve work specifications. The SSM at the AMA has the full responsibility of maintaining the inspection requirements up-to-date for the weapon system assigned to him for management.<sup>14</sup> The inspection manuals and work cards prepared as a part of the SSM's responsibility are used as a major portion of the work specifications section in the contract. Required corrections of discrepancies found during the inspection must be clear to the contractor or he could obviously interpret some of the work as being beyond the fixed price portion of the contract.

Information available through the AFM 66-1 program on quantity of malfunctions, when and how the malfunction

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<sup>14</sup>AFLCM 66-2, op. cit., p. 6-1-1.

was discovered, and what action was taken is invaluable in setting up the work specifications. For example, if a specific inspection is required at a certain time interval but the world-wide data available through the system indicates this prescribed inspection completely unnecessary and ineffective, then the particular specification could be eliminated from the contract and savings to the government in time and funds would accrue. Likewise if data indicates that more complete inspections are necessary then this information would logically be included in the inspection requirements and work deck cards and eventually be used as work specifications in a contract.

#### Work Request Procedures for Over and Above Work

An area of difficulty that was not anticipated by the authors in the development of the questionnaires became very obvious as the returns were tabulated and examined, namely, the procedures used in the processing of work requests for over and above work. One officer in charge of a detachment in a personal letter attached to his response recommended that the work request procedures be included in the study.

The legal procedure for the processing of work requests for over and above work on maintenance and overhaul contracts can be found in Section 54, Part 21, of the Air Force Procurement Instruction (AFPI). The actual work request clause normally contained in the various overhaul and

maintenance contracts is in AFPI 7-4065. These applicable sections of the AFPI are included as Appendix X.

The Directorate of Procurement and Production at OCAMA established procedures for analyzing, reviewing, processing, and approving work requests in operating instruction No. 70-205 which is inclosed as Appendix XI.

During the preliminary analysis phase of research, the fact that the ACO and the OIC could not feasibly comply with the full procedures found in Appendices X and XI was evident from the voluntary statements made by the respondents. This subject of non-compliance with AFPI and OCAMA instructions was added to the agenda for the personal interview phase. The resultant interviews with the four detachments corroborated the initial indication of difficulty in compliance with the established written procedures.

This non-compliance has also been observed and reported by the AFLC Inspector General.<sup>15</sup>

It was observed during the research interviewing, that the degree of compliance with the various official procedures and contract clauses varied from one detachment and contractor to the next. AFPI 54-2103(c) states: "Unless otherwise provided in the contracts, the Administrative Contracting Officer (ACO) is the only individual authorized to issue a work request." The clause used in the contract

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<sup>15</sup>This was confirmed by the research team with the Office of the Inspector General, AFLC, on 5 July 1966.

requires the contractor to notify the ACO of all inseverable work, defined in Appendix X, promptly after the work is encountered. The ACO then has the responsibility to indicate his concurrence or agreement as to the extent of the work to be performed by issuing a work request to the contractor. The contractor then furnishes a price quotation covering the work to be performed followed by a negotiation by both parties aimed at arriving at a fair and reasonable price and delivery schedule. This forementioned procedure is not being followed by the contract administration team.<sup>16</sup> In actual practice it is the Air Force quality assurance personnel and/or the industrial specialist that either concurs or does not concur with the contractor's inspection sheets, deficiency reports or any other similar document that is utilized by the contractor to give a detailed description of the discrepancy, and the corrective action needed, prior to the issuance of the formal work request for the inseverable work encountered as a result of the inspection. The contractor normally proceeds with the work as soon as he has received this initial concurrence. A formal work request is later submitted to the ACO by the contractor indicating previous concurrence by the quality assurance personnel or the industrial specialist. It is clear, therefore, that the authorized approval of the work request by the ACO is generally accomplished considerably after the

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<sup>16</sup>This fact was confirmed by the research team with various Officers in Charge and ACOs during personal interviews conducted during the period 27 June - 1 July 1966.

work has been started and possibly after the work has actually been completed.

This general procedure was formulated because of the impractical requirements of the AFPI. If the ACO insisted on strict compliance with AFPI 54-2103 the volume of work involved and the necessary time it takes to prepare the required paper work would inevitably result in a multitude of costly production work stoppages. Faced with the problem of continuous delays, the contract management team and the contractors have been forced into using this procedure which is not in full compliance with the AFPI. In effect, the contractor is risking that the particular discrepancy will be authorized for work. According to information gathered by the writers during personal interviews with various ACOs, the contractor's decision is ratified by the ACO with only rare exceptions. However, the fact remains that the contractor is working on discrepancies without formal contractual coverage as required by law.

At the present time, procedures are being developed in the detachments to relieve the situation. These modified procedures, which follow, call for the ACO to notify the contractor in writing of the internal procedures to be followed. This letter will also designate by name those quality assurance and production personnel whose signature is acceptable on the Material Deficiency Reports or any similar document that may be used by the contractor. The Air Force quality assurance signature on the document constitutes automatic

ACO approval for the contractor to proceed with the work up to a maximum of 150 manhours unless the approval affects the delivery schedule. In such instances the concurrence of the Air Force production specialist is also necessary prior to beginning work.<sup>17</sup>

The production specialist will also analyze, review and evaluate the contractor's manhours estimate on all deficiency reports and indicate his concurrence by his signature. Any non-concurrence will be so indicated and the work estimate will then be negotiated. Upon the completion of the actions summarized above, the ACO will approve the work request in a timely manner. Individual work estimates exceeding 150 manhours must have the approval of the ACO prior to the contractor beginning the work.

The forementioned procedure provides an increase in the discipline as well as increasing the efficiency of the system. It is the opinion of the authors that a definite and immediate need exists for an Air Force review of these current procedures from both a legal as well as a practical viewpoint, leading to a change or modification in the existing Air Force Procurement Instructions.

#### Work Standards

The establishment of standards for repetitive type over and above work is essential to an effective and efficient

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<sup>17</sup>This information was synthesized by the research team from a number of local operating instructions furnished by the Detachments.

maintenance and overhaul program. The contractor should also be encouraged to submit standards for negotiation with the government. Accurate records maintained by the ACO and AF production specialists on repetitive work can be invaluable in future negotiations.

In overhaul and maintenance type contracts, particularly IRAN, it is not always possible to precisely describe the extent of particular categories of work prior to the actual delivery and inspection of the aircraft or component. Several examples are the replacement of frayed wire or the preservation and painting of exposed metal surfaces. The development and inclusion of standards, such as so much time required to replace a lineal foot of wiring or so much time required to preserve and paint a square yard of metal surface, would expedite the processing of the work requests and would result in more accurate and uniform pricing of repetitive "over and above" work.

Individual contract administration services detachments have, in conjunction with the AMAs, developed standards and these have been incorporated in some contracts. Questionnaire responses and personal interviews attest to the fact that this practice is not prevalent throughout the program. Work requests which are approved by the ACO under the terms of the contract are forwarded to the PCO at the responsible AMA. Since each AMA has work scheduled at several plants, and, in addition has access to data on work performed at organic facilities, it appears most feasible that responsibility for the development of these standards should be



vested in the AMAs. An intensive interchange of information should also take place between the AMAs with the intent of eventually publishing a document of guidelines to procuring activities covering common, repetitive type work.

#### Quality Control/Assurance Aspects

The prime factor in establishing assurance of quality and reliability in the overhaul and maintenance function is an effective control of quality of conformance on the part of the contractor.<sup>18</sup> The term quality assurance denotes a planned and systematic pattern of government actions necessary to provide adequate confidence that an end product meets all technical and contractual requirements. Quality control is the contractor's management function concerned with the procedures, methods, techniques and tests required during procurement, receipt, storage, issue, and production that are necessary to insure a customer's receipt of a product of the required quality.<sup>19</sup>

Current DOD instructions state that the basic quality assurance concept is that contractors are responsible for controlling product quality and for insuring that only those items that conform to contractual requirements are delivered to the government. The determination of

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<sup>18</sup> Comment of Mr. F. L. Winne in his memorandum to Mr. Chauncey H. Dean, Faculty, School of Systems and Logistics, Air Force Institute of Technology, Wright-Patterson AFB, Ohio, 27 May 1966.

<sup>19</sup> Project 60 Glossary, p. 144.

compliance prior to acceptance is a military responsibility.<sup>20</sup> In this regard, DOD quality assurance policy states that this determination of conformance of the product to contractual requirements will be made on the basis of objective evidence of quality and quantity.<sup>21</sup>

Two military specifications, MIL-Q-9858A and MIL-I-45208A, provide the basic guidelines for the quality control/assurance function as applied in the execution of overhaul and maintenance contracts. "Specification MIL-Q-9858A, Quality Program Requirements, applies to more complex items of military hardware and systems, when it is essential to assure conformance to contractual requirements through control of all work operations and manufacturing processes, as well as inspection and tests."<sup>22</sup> MIL-I-45208A, Inspection System Requirements, is used when assurance of conformance to contractual requirements may be obtained by controlling only inspection and testing rather than all work operations.<sup>23</sup> Appendix XII is a comparison of the differences between the requirements of these two specifications. For

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<sup>20</sup>U.S., Air Force Systems Command, Procurement Quality Assurance Program, AFSCM 74-1 (Andrews AFB, Washington, D.C.: 1 July 1963), p. 1-1.

<sup>21</sup>Ibid., p. 1-1.

<sup>22</sup>U.S., Department of Defense, Evaluation of a Contractor's Quality Program, H50 (Washington, D.C.: U.S. Government Printing Office, 23 April 1965), p. 2.

<sup>23</sup>U.S., Department of Defense, Evaluation of Contractor's Inspection System, MIL-HDBK-51 (Washington, D.C.: U.S. Government Printing Office, 1 December 1964), p. IV.

comparison purposes, MIL-Q-9858, which is no longer used, is also included in this Appendix.

From the above definitions it can be seen that neither of these specifications precisely describes the type of work performed under overhaul and maintenance contracts but rather the requirements fall somewhere between the two. Overhaul and maintenance does not particularly involve the more complex items of military hardware and systems as defined in MIL-Q-9858A nor, because of the nature of the work performed, i.e. product teardown, inspection, component repair or replacement, and product rebuild, can assurance of conformance to contractual requirements be obtained through controlling only inspection and testing rather than all work operations.

An impression gained during personal interviews was that there is a very definite need for a military specification adapted to overhaul and maintenance type production. Numerous comments were also received to this effect with the questionnaires.

The importance of a military specification that fully meets the requirements of the government is evident when it is considered that both excessive and insufficient quality control requirements are costly. Excessive requirements place an unnecessary burden and expense on the contractor which in turn is reflected in an inflated contractual cost. Insufficient requirements do not provide the degree of confidence required to assure performance as specified in the contract.

AFSCM 74-1 prescribes the policies and procedures to be followed in the AFSC Quality Assurance Program. Some criticism of the fact that this manual does not concern itself with quality control/assurance as it relates to overhaul and maintenance type production was noted during the course of research. Specifically, it was recommended that a manual be prepared which would more adequately cover quality control/assurance aspects. AFLC has completed this task.<sup>24</sup> The new manual provides considerably more guidance to those engaged in the plant cognizance program than was formerly available.

#### Analysis of the Use of AFTO Form 64

The AFTO Form 64 is utilized for obtaining customer evaluation of workmanship performed by contractors and depots. This form is completed by the receiving activity after delivery of the overhauled item has been made. The form requires that the receiving activity indicate the quality of overhaul or production by noting the discrepancies found and the corrective action required. Copies are forwarded to the ACO and to the cognizant SSM/IM AMA.<sup>25</sup>

Proper completion of AFTO Form 64 and its timely

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<sup>24</sup>During the course of an interview with AFLC personnel, it was determined that AFLCM 74-1 is being printed and will be available for distribution during August 1966. A draft copy of this manual was made available for use by the research team.

<sup>25</sup>U.S., Department of the Air Force, USAF Materiel Deficiency Reporting System, T.O. 00-35D-54 (Washington, D.C.: 1 May 1965), p. 4-1.

submission not only provides valuable information on contractor performance but it also serves as a vehicle for identification of problem areas requiring remedial action. The following comment was submitted by a governmental respondent, "AFTO Forms 64 are one of the more useful instruments in measuring the overall effectiveness of any contractor overhaul and quality procedures as well as the effectiveness of any Contract Administration activity."

From the above it would appear that the preponderance of answers to question 32, which concerns the usefulness of AFTO Form 64, would be that the form is frequently or very frequently useful. Such, however, is not the case. Only 55.2 percent of the governmental respondents and 55.0 percent of the contractor respondents chose these two responses. Analysis of the underlying reason for this paradox reveals deficiencies in the manner in which the forms are prepared, in the timeliness of their submission, and in delays in the initial preparation of the form by the field detachments. Two specific points regarding manner of preparation are (1) the descriptions of discrepancies noted are not always clearly defined, and (2) many of the discrepancies listed cover items which were not included in the scope of work performed under the contract. Contributing to this second point is the fact that, although copies of the applicable contracts are forwarded to the receiving activity, the work specification portion frequently is not referred to by the individual preparing the AFTO Form 64.

There is a definite indication that more emphasis should be placed on the importance of proper and timely preparation of this report.

#### Summary

The second hypothesis stated: "Governmental action is an active condition of contractor performance." The discussion presented in this chapter supports this hypothesis. Deficiencies in GFP support have been the cause of significant problems of mutual concern to governmental and contractor personnel.

The third hypothesis stated: "Procedures can be developed to insure that contractor performance and governmental quality assurance inspections fully meet the requirements of the U. S. Government. The analysis presented in this chapter corroborates this hypothesis. Clearly defined work specifications will form the basis for effective contractor performance and governmental surveillance. Maintenance data provided through the AFM 66-1 reporting system does provide information that can be used in the development of more clearly defined work specifications.

Analysis of questionnaire data and comments indicate that additional effort is required in the area of military specifications for overhaul and maintenance contracts. The importance of and current deficiencies in the AFTO Form 64 reporting system were discussed. The next chapter will be devoted to an analysis of the internal AF management of the plant cognizance program.

## CHAPTER VI

### DISCUSSION AND ANALYSIS OF INTERNAL AIR FORCE MANAGEMENT OF THE AFLC PLANT COGNIZANCE PROGRAM

#### Introduction

As was noted earlier, the primary data gathering instruments used in the research were two multiple choice questionnaires. Questions numbered 1 through 34 were similar on both questionnaires and were used in the testing of the hypotheses. The questionnaire sent to government contract administration personnel had an additional seven questions which were used to gather specific information and to analyze the internal Air Force management of the program. The analysis of these additional questions will be discussed in this chapter under three distinct sections, namely; (1) Authority and guidelines, (2) Workload and manning levels, and (3) Training.

#### Authority and Guidelines

Three questions were designed to evaluate the authority and guidelines given to the Air Force personnel in the program. The first of these questions addressed itself to the amount of authority vested in the individual, while the second question asked if guidelines regarding authority were clear and precise.

Question 35 asked how often the respondent is delegated sufficient authority to perform his work. A tally of the replies indicates that 63.5 percent of the governmental personnel chose the reply very frequently. Since this is the most favorable response of the four choices, it will be assumed that the respondents meant that they were always delegated sufficient authority. The remaining 36.5 percent then, felt that their delegation of authority was something less than adequate, the degree varying from 10.8 percent who felt they were only rarely or occasionally delegated sufficient authority to 25.7 percent who felt they were frequently but not always delegated sufficient authority.

The same assumption made above, i.e., that very frequently is the most favorable choice and means always, will be made in analyzing questions 36 and 37.

In reply to question 36, which queried the respondents on how often the guidelines regarding their authority were precise and clear, 55.4 percent chose the reply very frequently. The remaining 44.6 percent then felt the guidelines were something less than always precise and clear.

Question 37 asked if the same degree of authority was delegated under contracts negotiated by different contracting officers. Only 35.6 percent of the respondents indicated that the same degree of authority was delegated by different contracting officers.

The above analysis indicates significant deficiencies in the degree of delegation of authority and in the



preciseness of the guidelines given. The matter of insufficient delegation of authority to the OICs was discussed in Chapter III as was the lack of adequate guidance to supervisors. In addition, it appears that the degree of authority delegated to the field detachments by contracting officers is not consistent. Since each detachment normally administers contracts awarded by several AMAs, this lack of commonality leads to inconsistencies in the conduct of contract administration with the subsequent strong possibility of misinterpretation of requirements. It serves, further, to confuse the contractors performing under the contracts and degrades the goal of presenting a unified position to the contractor.

#### Workload and Manning Levels

Questions 39 and 40 were directly concerned with the workload of the specific detachments. As far as the actual workload was concerned, 74 percent of the government personnel reported at least a "heavy" workload. Personal observations made during the research at the various detachments corroborated the percentage as being a very conservative figure especially in the contract administrator and industrial specialist positions.

Because of the nature of overhaul and maintenance work, a continuously heavy workload and responsibility is also placed on the quality assurance representatives. Question 40, which asked if there were sufficient quality

assurance personnel at the detachment to cover the contractual requirements, was answered negatively by 57.4 percent of the respondents. This percentage was represented by 39 negative versus 29 affirmative replies. A further analysis of the data made available through the data processing program used to tabulate the information substantiates that 32 of the same 39 respondents also reported their workload to be at least "heavy" in response to question 40.

Specific areas such as pricing, establishing of standards, work estimating and negotiation of all three subjects with the contractor should be performed in a carefully planned and accurately documented manner. Personal interviews conducted by the research team with various contractors indicated that both the government as well as the contractor perform much more effectively when sufficient personnel are assigned to the government detachment. As one vice-president and general manager said, "An undermanned detachment resorts to behind the desk estimating and inspecting, and after the fact pricing, which leads to the development of future problems."

In general, the authors feel that most of the detachments are working under a heavy workload and could use additional personnel as well as a more expeditious filling of the present vacancies indicated in Appendix II. Future workloads in contract maintenance appear to be increasing at a rapid rate. For example, dollar expenditures under the program will increase from a fiscal year (FY) 66 amount of

\$82 million to a FY 67 estimate of \$159 million as was stated in Chapter I. Future trends in contract maintenance should continue at significant levels. It is recommended that an Air Force study be made of the present manning level in the AFLC contract maintenance program with the aim of providing the additional personnel required to meet present and future workloads.

### Training

Question 41 was included in order to assess the adequacy of current AF training in areas associated with administration of overhaul and maintenance type contracts. Of the 76 respondents, 77.6 percent indicated that they had received formal training but that it was in general areas allied toward but not specifically oriented to overhaul and maintenance type work. Numerous comments received with the questionnaires indicated a very real need for a training course specifically tailored to this function.

It would appear that a course designed to acquaint personnel with the major facets of administration of overhaul and maintenance type contracts would be highly desirable. This could be accomplished within the framework of existing courses by placing more emphasis on overhaul and maintenance aspects or through the establishment of a new course of instruction. Specific areas recommended for inclusion in the curriculum would be the contractual concept, the management philosophy of the plant cognizance program, property

administration, and the role and purpose of production and quality assurance surveillance. Since each of the military services and DCASA are actively engaged in the administration of overhaul and maintenance contracts, a course of this nature might well be of interest throughout DOD. It is felt that further study of this matter is warranted.

## CHAPTER VII

### SUMMARY AND CONCLUSIONS

#### Summary

The USAF conducts its depot level overhaul and maintenance either at organic facilities or through commercial contracts. This study, concerned with the latter method, was occasioned by a report of deficiencies in the program reported in the fall of 1965.

The contractual overhaul and maintenance program plays a vital role as an extension of USAF organic capabilities. Efficient and effective conduct of the program is imperative to insuring force readiness.

The research for the thesis included a review of the contractual concept and instrument, analysis of the current AF organizational structure for post award coordination and surveillance, and statistical and logical analysis of data gathered during the course of the study. The primary data gathering instruments were two multiple choice questionnaires sent to contract administration services and contractor personnel. Following a preliminary analysis of early responses to the questionnaires, a field trip was made by the authors to four of the eight USAF field detachments administering the contracts, eight of the thirteen

contractors' plants engaged in performing under the contracts, and the Oklahoma City Air Materiel Area. The field trip served to amplify and clarify points of significant interest that had been initially determined from the preliminary questionnaire analysis.

Additional information, essential to the research study, was obtained from DOD and USAF regulations and instructions pertinent to the overhaul and maintenance function. Management reports, files, and correspondence, available at AFLC provided a wealth of most helpful and timely information as did personal interviews with AFLC personnel.

#### Conclusions and Recommendations

The underlying premise of this research effort has been that the primary objective of government contract administration services and contractor personnel is the same, i.e., to deliver a qualitatively superior overhauled item at an economical price. Recognition of this premise led to the development of hypotheses based on the theme that both parties experience major difficulties in the same general areas.

The first hypothesis is that there is a significant correlation between the basic causes of contract difficulties experienced by government contract administration services personnel and those difficulties experienced by contractors.

The statistical analysis of the research data indicated a highly significant correlation or association

between the types of problems experienced by governmental personnel in administering overhaul and maintenance contracts and the contractors' difficulties in performing under the contracts.

The second hypothesis is that governmental action has a direct influence on contractor performance.

a. The government assumes an obligation in providing government furnished property; governmental performance, then, is an active condition of contractor performance.

A non-parametric statistical test of the research data indicated that the most significant problem area in the conduct of the program is the lack of effective and timely GFP support. It is recommended that the internal operating procedures of the AMAs be reviewed with the intent of making more meaningful use of the MRLs as supply demand and requirements forecast documents. It is also recommended that SMAMA make an automatic distribution of updated MRLs to the cognizant AMAs. On the basis of the relatively high incidence of receipt of defective GFP at contractors' plants, it is further recommended that action be taken to more adequately detect deficiencies in the condition of GFP prior to shipment from the storage point.

The third hypothesis is that procedures can be developed to insure that contractor performance and governmental quality assurance inspections fully meet the requirements of the United States Government.

a. The maintenance data furnished through the Air Force Manual 66-1 reporting system provides information that can be used as a sound basis for the development of clearly defined work specifications.

b. Clearly defined work specifications will form the foundation for the design of effective quality assurance and quality control procedures.

The maintenance contract Appendices A and B are the most critical items in maintenance contract negotiations and the most frequent source of legal dispute. Analysis of the research data indicates that continued effort is required in the area of precisely delineating work specifications and in the use of AFM 66-1 data and the research team so recommends.

The current instructions in the AFPI regarding work request procedures are not being followed nor can they be if the contractor is expected to maintain a stable and continuous production schedule. Analysis of current operating procedures, while permitting more stable production, leads to contractors frequently performing work without contractual coverage. It is recommended that the AFPI be amended to provide a more feasible method of approving work requests at a lower level than is presently the case. It is also recommended that the matter of programming funding requirements for "over and above" work and for funding of substitutes of CFP for GFP be further studied.



In overhaul and maintenance type contracts, particularly IRAN, it is not always possible to precisely describe the extent of particular categories of work prior to the actual delivery and inspection of the aircraft or component. The establishment of standards for repetitive type over and above work would expedite processing of work requests and would result in more accurate and uniform pricing of this type work. A conclusion of this study is that a more coordinated and intensive effort is required to develop standards and the research group makes this recommendation.

Analysis of current AF contractual concepts indicates an aggressive program to obtain a maximum amount of competition and at the same time to eliminate marginal contractors. This latter area has been a problem in the past but it has been recognized and more extensive use of pre-award surveys has been made to preclude the awarding of contracts to marginal contractors. In the opinion of the authors, the two-step method of solicitation has considerable merit and more extensive use of this procedure may well be warranted. It is recommended that this point be given consideration.

Analysis of the current organizational structure for the post award administration of the contracts indicates a lack of precise and clearly defined lines of responsibility and authority. It is recommended that the OICs position as the manager of his detachment with the responsibility for

overall performance of his organization and the authority to guide and direct its day-to-day operations be clearly established. The responsibility of the cognizant AMA for the guidance and direction of detachment personnel in technical areas should be clarified. It is further recommended that the AMAs coordinate their efforts toward developing standardized guidelines for the technical conduct of the plant cognizance program.

The AFTO Form 64 is an effective means of obtaining customer evaluation of workmanship performed by contractors. Analysis of the research data indicates deficiencies in the manner of preparation and the timeliness in the submission of this report. It is recommended that the importance of proper completion and timely submission of this report be emphasized to field commands.

#### Recommendations for Further Study

Two military specifications, MIL-Q-9858A and MIL-I-45208A, provide the basic guidelines for the quality control/assurance function for overhaul and maintenance contracts. Neither of these specifications is precisely applicable to this type of production. It is recommended that the matter of developing a military specification attuned to overhaul and maintenance type work be pursued.

Personal observations made during the course of research and the responses to the questionnaires indicate that the workload of the field detachments can best be described as heavy with a forecast of significant increases in the

near future. It is felt that this increase in workload cannot feasibly be absorbed within the present manning levels. It is recommended that a study of workload and manning levels be initiated at the earliest practicable date.

It is concluded that while there are a number of formal training courses which have general application to overhaul and maintenance work available to personnel of the DOD, there is a definite need for courses oriented more to this type of work. The research group recommends that a study be initiated to determine the desirability and feasibility of revising existing courses to accommodate this need or to design a new course specifically oriented to administration of overhaul and maintenance work.

As mentioned previously in this chapter, present funding procedures frequently cause a contractor to perform work without contractual coverage. It is the authors' recommendation that the matter of programming funding requirements for "over and above" work and for funding of substitutes of CFP for GFP be further studied.

The authors conclude that there are problems of significant magnitude in the conduct of the USAF plant cognizance program. Resolution of these problems is more evolutionary than revolutionary. It is the authors earnest hope that this research effort will contribute to a more effective and efficient conduct of the program.

APPENDICES

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APPENDIX I  
LISTING OF CONTRACTORS AND AFLC DETACHMENTS  
INVOLVED IN THE PROGRAM

## APPENDIX I

### COGNIZANT HQ OCAMA DETACHMENT

### CONTRACTOR

Detachment 25  
Dallas, Texas

Southwest Airmotive Co.  
Dallas, Texas

Dallas Airmotive, Inc.  
Dallas, Texas

Detachment 26  
St. Petersburg, Florida

Fairchild-Hiller Corp.  
Aircraft Services Div.  
St. Petersburg, Florida

Detachment 27  
Crestview, Florida

Fairchild-Hiller Corp.  
Aircraft Services Div.  
Crestview, Florida

Detachment 28  
St. Augustine, Florida

Fairchild-Hiller Corp.  
Aircraft Services Div.  
St. Augustine, Florida

Detachment 29  
Miami, Florida

Aerodex Corp.  
Miami, Florida

Air International  
Miami, Florida

Propeller Services Inc.  
Miami, Florida

American Airmotive Corp.  
Miami, Florida

Detachment 30  
Greenville, South Carolina

LTV Electrosystems, Inc.  
Greenville, South Carolina

International Aerospace  
Services, Inc.  
Charleston, South Carolina

Detachment 31  
Jamaica, New York

Lockheed Aircraft Service Co.  
Jamaica, New York

Detachment 32  
Lake Charles, Louisiana

Lockheed Aircraft Service Co.  
Lake Charles, Louisiana

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APPENDIX II

CIVILIAN PERSONNEL STRENGTH

OF THE AFLC DETACHMENTS

JUNE 1966

APPENDIX II  
CIVILIAN PERSONNEL STRENGTH

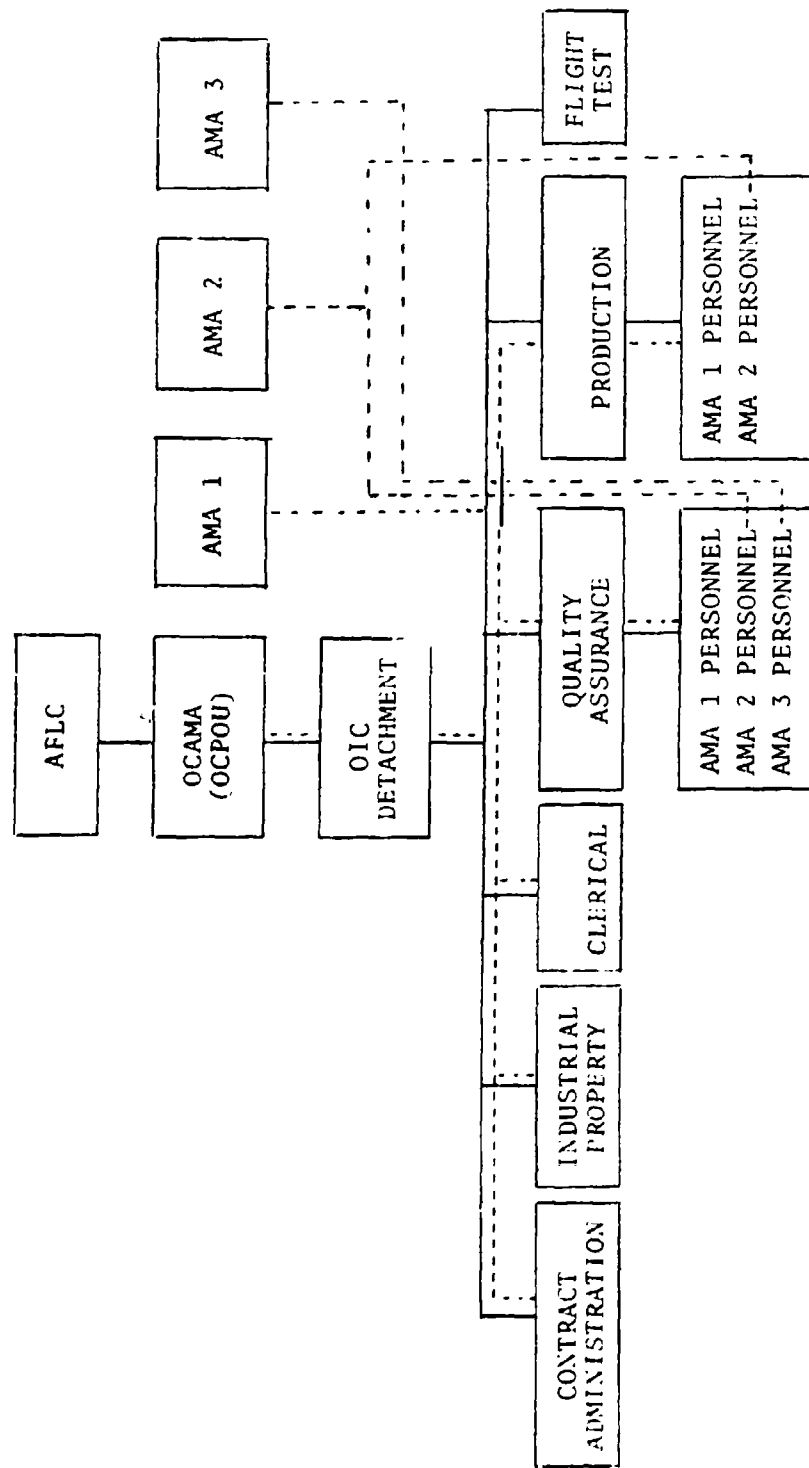
	Auth	Asgn
<u>Detachment 25, Dallas, Texas</u>		
San Antonio AMA	5	5
Oklahoma City AMA	11	10
Total	16	15
<u>Detachment 26, St. Petersburg, Florida</u>		
Warner Robins AMA	13	12
Oklahoma City AMA	7	7
Total	20	19
<u>Detachment 27, Crestview, Florida</u>		
Warner Robins AMA	2	2
Sacramento AMA	8	8
Oklahoma City AMA	6	5
Total	16	15
<u>Detachment 28, St. Augustine, Florida</u>		
U. S. Navy	4	4
Warner Robins AMA	14	14
Oklahoma City AMA	8	7
Total	26	25
<u>Detachment 29, Miami, Florida</u>		
San Antonio AMA	16	13
Warner Robins AMA	7	6
Oklahoma City AMA	17	9
Total	40	28
<u>Detachment 30, Greenville, South Carolina</u>		
San Antonio AMA	13	11
Warner Robins AMA	4	4
Oklahoma City AMA	7	6
Total	24	21
<u>Detachment 31, Jamaica, New York</u>		
Sacramento AMA	7	7
Warner Robins AMA	4	4
Oklahoma City AMA	16	15
Total	27	26
<u>Detachment 32, Lake Charles, Louisiana</u>		
Ogden AMA	5	5
Oklahoma City AMA	6	5
Total	11	10
Grand Total	180	159



APPENDIX III

ORGANIZATIONAL CHART  
OF AFLC DETACHMENT

# APPENDIX III



ADMINISTRATIVE AND OPERATIONAL CONTROL RESPONSIBILITIES

TECHNICAL DIRECTION AND MANNING RESPONSIBILITIES

APPENDIX IV

CONTRACTOR PERSONNEL QUESTIONNAIRE

APPENDIX IV

QUESTIONNAIRE

CONTRACTOR PERSONNEL

INSTRUCTIONS: Place a check mark in the appropriate place for question #1. In the remainder of the questionnaire, circle the answer that most nearly describes the frequency of occurrences. Insert NA in the choice "other" if the question is not applicable. This space may also be used for comments.

Your business title is: \_\_\_\_\_

1. How long have you held your present position?

- ☐ a. Less than 1 year
- ☐ b. Between 1 and 2 years
- ☐ c. Between 3 and 5 years
- ☐ d. Over 5 years

2. With what governmental agencies does your company hold contracts?

- a. Army   b. Navy   c. Air Force   d. Defense Supply Agency
- e. NASA   f. other \_\_\_\_\_

3. Do the work statements of the contracts clearly identify the work included in the fixed price section as differentiated from over and above work?

- a. rarely      b. occasionally      c. frequently
- d. very frequently      e. other \_\_\_\_\_

4. Do the statement of work and the specifications of the contract precisely delineate the scope of overhaul and modification work?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
5. Are required quality characteristics adequately defined in the work statement and specifications of the contract?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
6. Does the U.S. Government require teardown inspection in a manner that facilitates verification of the condition coding of parts?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
7. Are preliminary condition reports received from the U.S. Government before completion of the teardown inspections?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
8. Does the material requirements list adequately describe or identify the scope of work to be performed under the contract?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_

9. During the teardown inspection can you make a definite determination of whether a deficiency falls under the fixed price overhaul category, over-and-above category, or the modification category?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
10. How often does late receipt of government furnished property adversely affect production schedules?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
11. How often is government furnished property not properly identified when received?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
12. How often is government furnished property received in an unserviceable condition?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
13. How often do you find it difficult to maintain accountability for government furnished property throughout the course of production?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_

14. How often do government furnished property disposal regulations cause significant problems?  
a. rarely    b. occasionally    c. frequently  
d. very frequently    e. other \_\_\_\_\_
15. How often do work requests for over-and-above work get processed in sufficient time so as not to adversely affect production schedules?  
a. rarely    b. occasionally    c. frequently  
d. very frequently    e. other \_\_\_\_\_
16. How often is the criteria regarding economic repair limitations precise and clear?  
a. rarely    b. occasionally    c. frequently  
d. very frequently    e. other \_\_\_\_\_
17. How often do you find that unserviceable but economically reparable items cannot be reworked because of the terms of the contract?  
a. rarely    b. occasionally    c. frequently  
d. very frequently    e. other \_\_\_\_\_
18. Do you experience delays in production due to difficulty in obtaining government furnished material?  
a. rarely    b. occasionally    c. frequently  
d. very frequently    e. other \_\_\_\_\_

19. How often do you experience delays in production due to difficulty in obtaining government furnished special tooling?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
20. How often do you experience delays in production due to difficulty in obtaining government furnished technical orders and technical data?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
21. How often do you experience delays in production due to difficulty in obtaining government furnished reparable units?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
22. Do you experience situations where substitute materials for category 3, logistic support items, would expedite production but are not allowable under the terms of the contract?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
23. Are the requirements of MIL-Q-9858A realistic to your type production?
- a. completely      b. nearly      c. partially  
d. not at all      e. other \_\_\_\_\_



24. Are the requirements of MIL-I-45208A realistic to your type production?
- a. completely      b. nearly      c. partially  
d. not at all      e. other \_\_\_\_\_
25. Do excessive delays occur in processing change orders through the contracting office?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
26. Are technical questions that are referred to government authorities answered promptly?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
27. Do government quality assurance standards provide clear guidance for your quality control program?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
28. Do statistical sampling techniques now used provide a reliable estimate of total product quality?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
29. Do quality assurance standards received from various governmental agencies differ significantly?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_

30. Are progress meetings held with government representatives?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
31. Are potential problem areas discussed at progress meetings?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
32. Are copies of AFTO Form 64 useful in measuring the overall effectiveness of your production and quality control procedures?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
33. How often is production delayed because of the non-availability of a government inspector at the time needed?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
34. How often is production delayed because of the lack of a government inspector possessing the requisite technical skills?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_

## ADDITIONAL COMMENTS:

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APPENDIX V

CONTRACT ADMINISTRATION SERVICES PERSONNEL  
QUESTIONNAIRE

## APPENDIX V

### QUESTIONNAIRE

#### CONTRACT ADMINISTRATION SERVICES PERSONNEL

INSTRUCTIONS: Place a check mark in the appropriate place for the questions on page one. In the remainder of the questionnaire, circle the answer that most nearly describes the frequency of occurrences. Insert NA in the choice "other" if the question is not applicable. This space may also be used for comments.

You are actively engaged in Contract Administration as an:

- ☐ a. Officer in Charge of a Detachment
- ☐ b. Contract Administrator
- ☐ c. Contract Price Analyst
- ☐ d. Industrial Property Officer
- ☐ e. Production Specialist
- ☐ f. Electronics Equipment Quality Control Specialist
- ☐ g. Supervisory Quality Assurance Representative
- ☐ h. Aircraft Quality Control Specialist
- ☐ i. Other (specify) \_\_\_\_\_

1. How long have you held your present position?

- ☐ a. Less than 1 year
- ☐ b. Between 1 and 2 years
- ☐ c. Between 3 and 5 years
- ☐ d. Over 5 years

2. Are contracts for other than maintenance and overhaul work administered by your office?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
3. Do the work statements in contracts clearly identify the work included in the fixed price section as differentiated from over-and-above work?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
4. Do the statement of work and the specifications of the contract precisely delineate the scope of overhaul and modification work?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
5. Are required quality characteristics adequately defined in the work statement and specifications of the contract?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
6. Does the contractor conduct the teardown inspection in a manner that facilitates verification of the condition coding of parts?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_

7. Are preliminary condition reports received from the using command before completion of the teardown inspection?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
8. Do the material requirements adequately list, describe or identify the scope of work to be performed under the contract?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
9. During the teardown inspection can you make a definite determination of whether a deficiency falls under the fixed price overhaul category, over-and-above category, or the modification category?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
10. How often does late receipt of government furnished property adversely affect production schedules?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
11. How often is government furnished property not properly identified when received?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_

12. How often is government furnished property received in an unserviceable condition?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
13. How often do you find it difficult to maintain accountability for government furnished property throughout the course of production?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
14. How often do government furnished property disposal regulations cause significant problems?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
15. During the production phase does the contractor submit work requests for over-and-above work as soon as a discrepancy is discovered?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
16. How often is the criteria regarding economic repair limitations precise and clear?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
17. Does the contractor make full use of the rework procedure?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_



18. How often do difficulties in obtaining government furnished property cause delays in production?  
a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
19. How often do difficulties in obtaining government furnished special tooling cause delays in production?  
a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
20. How often do difficulties in obtaining government furnished technical orders and technical data cause delays in production?  
a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
21. How often do difficulties in obtaining government furnished reparable cause delays in production?  
a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
22. Do you experience situations where substitute material for category 3, logistic support items, would expedite production but are not allowable under the terms of the contract?  
a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_

23. Does the contractor's quality control program meet the requirements of MIL-Q-9858A?
- a. completely      b. nearly      c. partially  
d. not at all      e. other \_\_\_\_\_
24. Are the requirements of MIL-I-45208A realistic to your type production?
- a. completely      b. nearly      c. partially  
d. not at all      e. other \_\_\_\_\_
25. Do excessive delays occur in processing change orders through the contracting office?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
26. Are technical questions that are referred to the cognizant AMA answered promptly?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
27. Do government quality assurance standards provide clear guidance for the assessment of contractor performance?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
28. Do statistical sampling techniques now used provide a reliable estimate of total product quality?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_

29. Do quality assurance standards received from various AMAs differ significantly?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
30. Are progress meetings held with contractor's representatives?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
31. Are potential problem areas discussed at progress meetings?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
32. Are copies of AFTO Form 64 useful in measuring the overall effectiveness of the contractor's overhaul and quality procedures?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
33. How often are you unable to make an inspection at the time requested by the contractor because of your workload?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_

34. How often is production delayed because of the need for a government inspector with technical skills other than those available within your office?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
35. Are you delegated sufficient authority to effectively perform your work?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
36. Are the guidelines you receive regarding your authority clear and precise?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
37. Is the same degree of authority delegated under contracts negotiated by different contracting offices?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
38. How often does the contractor's lack of parts, tools, or equipment cause delays in production?
- a. rarely      b. occasionally      c. frequently  
d. very frequently      e. other \_\_\_\_\_
39. What terms can best be used to describe your workload?
- a. heavy      b. average      c. light      d. fluctuating  
e. steady      f. (a&d)      g. (a&e)      h. (b&d)  
i. (b&e)      j. other

40. Are there sufficient government quality assurance personnel at your facility to insure that items meet contractual requirements?
- a. yes      b. no      c. other \_\_\_\_\_
41. Have you received any formal governmental training in your specialized skill?
- a. yes, describe \_\_\_\_\_
- b. no

## ADDITIONAL COMMENTS:

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APPENDIX VI

SUMMARY OF RESPONSES TO QUESTIONNAIRES

CLASS NO.-00 (COL 77)  
QUESTION NO.-01

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	004	003	003	006	000	000	000	000	000	000	016
L-1	000	000	002	006	000	000	000	000	000	000	008
L-2	014	006	010	023	000	000	000	000	000	000	053
TOT	018	009	015	035	000	000	000	000	000	000	077

QUESTION NO.-02

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	010	002	001	002	001	000	000	000	000	000	016
L-1	005	001	000	001	001	000	000	000	000	000	008
L-2	027	013	008	004	001	000	000	000	000	000	053
TOT	042	016	009	007	003	000	000	000	000	000	077

QUESTION NO.-03

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	002	006	005	003	000	000	000	000	000	000	016
L-1	001	001	002	003	001	000	000	000	000	000	008
L-2	009	012	015	017	000	000	000	000	000	000	053
TOT	012	019	022	023	001	000	000	000	000	000	077

QUESTION NO.-04

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	000	005	009	001	001	000	000	000	000	000	016
L-1	001	001	003	002	001	000	000	000	000	000	008
L-2	004	008	022	019	000	000	000	000	000	000	053
TOT	005	014	034	022	002	000	000	000	000	000	077

QUESTION NO.-05

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	001	003	005	005	002	000	000	000	000	000	016
L-1	001	000	003	001	003	000	000	000	000	000	008
L-2	016	008	018	009	002	000	000	000	000	000	053
TOT	018	011	026	015	007	000	000	000	000	000	077

## QUESTION NO.-06

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	000	000	010	002	004	000	000	000	000	000	016
L-1	000	000	001	005	002	000	000	000	000	000	008
L-2	005	007	020	016	005	000	000	000	000	000	053
TOT	005	007	031	023	011	000	000	000	000	000	077

## QUESTION NO.-07

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	001	003	005	004	003	000	000	000	000	000	016
L-1	002	000	001	001	004	000	000	000	000	000	008
L-2	010	007	019	012	005	000	000	000	000	000	053
TOT	013	010	025	017	012	000	000	000	000	000	077

## QUESTION NO.-08

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	002	006	003	004	001	000	000	000	000	000	016
L-1	002	002	003	000	001	000	000	000	000	000	008
L-2	005	006	020	018	004	000	000	000	000	000	053
TOT	009	014	026	022	006	000	000	000	000	000	077

## QUESTION NO.-09

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	000	001	008	006	001	000	000	000	000	000	016
L-1	001	002	000	002	003	000	000	000	000	000	008
L-2	002	013	020	014	004	000	000	000	000	000	053
TOT	003	016	028	022	008	000	000	000	000	000	077

## QUESTION NO.-10

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	001	008	005	001	001	000	000	000	000	000	016
L-1	002	001	002	003	000	000	000	000	000	000	008
L-2	015	016	016	005	001	000	000	000	000	000	053
TOT	018	025	023	009	002	000	000	000	000	000	077

## QUESTION NO.-11

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	001	011	003	000	001	000	000	000	000	000	016
L-1	002	005	001	000	000	000	000	000	000	000	008
L-2	021	028	002	002	000	000	000	000	000	000	053
TOT	024	044	006	002	001	000	000	000	000	000	077



## QUESTION NO.-12

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	003	007	005	001	000	000	000	000	000	000	016
L-1	003	004	000	001	000	000	000	000	000	000	008
L-2	011	027	013	002	000	000	000	000	000	000	053
TOT	017	038	018	004	000	000	000	000	000	000	077

## QUESTION NO.-13

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	008	002	002	001	003	000	000	000	000	000	016
L-1	003	004	001	000	000	000	000	000	000	000	008
L-2	025	011	009	000	008	000	000	000	000	000	053
TOT	036	017	012	001	011	000	000	000	000	000	077

## QUESTION NO.-14

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	007	007	000	001	001	000	000	000	000	000	016
L-1	003	003	000	001	001	000	000	000	000	000	008
L-2	020	018	004	002	009	000	000	000	000	000	053
TOT	030	028	004	004	011	000	000	000	000	000	077

## QUESTION NO.-15

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	001	000	002	013	000	000	000	000	000	000	016
L-1	000	000	002	003	003	000	000	000	000	000	008
L-2	002	002	021	027	001	000	000	000	000	000	053
TOT	003	002	025	043	004	000	000	000	000	000	077

## QUESTION NO.-16

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	002	003	006	004	001	000	000	000	000	000	016
L-1	002	003	002	000	001	000	000	000	000	000	008
L-2	008	010	026	007	002	000	000	000	000	000	053
TOT	012	016	034	011	004	000	000	000	000	000	077

## QUESTION NO.-17

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	000	005	006	003	002	000	000	000	000	000	016
L-1	001	003	002	002	000	000	000	000	000	000	008
L-2	003	009	026	015	000	000	000	000	000	000	053
TOT	004	017	034	020	002	000	000	000	000	000	077

## QUESTION NO.-18

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	002	004	010	000	000	000	000	000	000	000	016
L-1	002	003	001	002	000	000	000	000	000	000	008
L-2	015	021	013	003	001	000	000	000	000	000	053
TOT	019	028	024	005	001	000	000	000	000	000	077

## QUESTION NO.-19

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	008	004	000	000	004	000	000	000	000	000	016
L-1	004	000	001	001	002	000	000	000	000	000	008
L-2	025	019	003	001	005	000	000	000	000	000	053
TOT	037	023	004	002	011	000	000	000	000	000	077

## QUESTION NO.-20

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	005	006	003	001	001	000	000	000	000	000	016
L-1	005	001	000	001	001	000	000	000	000	000	008
L-2	031	016	003	002	001	000	000	000	000	000	053
TOT	041	023	006	004	003	000	000	000	000	000	077

## QUESTION NO.-21

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	005	006	003	001	001	000	000	000	000	000	016
L-1	004	001	001	000	002	000	000	000	000	000	008
L-2	027	020	003	000	003	000	000	000	000	000	053
TOT	036	027	007	001	006	000	000	000	000	000	077

## QUESTION NO.-22

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	006	003	002	000	005	000	000	000	000	000	016
L-1	004	002	000	001	001	000	000	000	000	000	008
L-2	028	014	000	000	011	000	000	000	000	000	053
TOT	038	019	002	001	017	000	000	000	000	000	077

## QUESTION NO.-23

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	004	006	003	000	003	000	000	000	000	000	016
L-1	002	001	001	000	004	000	000	000	000	000	008
L-2	009	018	018	001	007	000	000	000	000	000	053
TOT	015	025	022	001	014	000	000	000	000	000	077

## QUESTION NO.-24

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	005	005	002	000	004	000	000	000	000	000	016
L-1	002	000	002	000	004	000	000	000	000	000	008
L-2	014	016	014	001	008	000	000	000	000	000	053
TOT	021	021	018	001	016	000	000	000	000	000	077

## QUESTION NO.-25

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	003	006	002	004	001	000	000	000	000	000	016
L-1	003	002	000	000	003	000	000	000	000	000	008
L-2	023	018	004	003	005	000	000	000	000	000	053
TOT	029	026	006	007	009	000	000	000	000	000	077

## QUESTION NO.-26

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	001	005	005	005	000	000	000	000	000	000	016
L-1	001	000	002	002	003	000	000	000	000	000	008
L-2	003	012	024	012	002	000	000	000	000	000	053
TOT	005	017	031	019	005	000	000	000	000	000	077

## QUESTION NO.-27

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	001	000	007	006	002	000	000	000	000	000	016
L-1	002	000	002	000	004	000	000	000	000	000	008
L-2	004	003	024	020	002	000	000	000	000	000	053
TOT	007	003	033	026	008	000	000	000	000	000	077

## QUESTION NO.-28

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	002	001	004	006	003	000	000	000	000	000	016
L-1	002	001	000	001	004	000	000	000	000	000	008
L-2	006	010	013	012	012	000	000	000	000	000	053
TOT	010	012	017	019	019	000	000	000	000	000	077

## QUESTION NO.-29

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	000	004	004	002	006	000	000	000	000	000	016
L-1	001	003	000	000	004	000	000	000	000	000	008
L-2	014	019	007	003	010	000	000	000	000	000	053
TOT	015	026	011	005	020	000	000	000	000	000	077

## QUESTION NO.-30

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	002	004	004	003	003	000	000	000	000	000	016
L-1	001	000	003	003	001	000	000	000	000	000	008
L-2	004	016	020	010	003	000	000	000	000	000	053
TOT	007	020	027	016	007	000	000	000	000	000	077

## QUESTION NO.-31

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	001	001	008	004	002	000	000	000	000	000	016
L-1	001	000	003	003	001	000	000	000	000	000	008
L-2	003	010	020	016	004	000	000	000	000	000	053
TOT	005	011	031	023	007	000	000	000	000	000	077

## QUESTION NO.-32

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	002	001	004	005	004	000	000	000	000	000	016
L-1	001	000	001	002	004	000	000	000	000	000	008
L-2	011	015	014	011	002	000	000	000	000	000	053
TOT	014	016	019	018	010	000	000	000	000	000	077

## QUESTION NO.-33

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	003	003	005	001	004	000	000	000	000	000	016
L-1	002	002	000	000	004	000	000	000	000	000	008
L-2	009	024	015	001	004	000	000	000	000	000	053
TOT	014	029	020	002	012	000	000	000	000	000	077

## QUESTION NO.-34

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	011	003	000	000	002	000	000	000	000	000	016
L-1	002	001	001	000	004	000	000	000	000	000	008
L-2	040	011	000	000	002	000	000	000	000	000	053
TOT	053	015	001	000	008	000	000	000	000	000	077

## QUESTION NO.-35

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	001	000	003	011	001	000	000	000	000	000	016
L-1	001	000	002	003	002	000	000	000	000	000	008
L-2	002	004	014	033	000	000	000	000	000	000	053
TOT	004	004	019	047	003	000	000	000	000	000	077

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	000	002	004	008	001	000	000	000	000	000	016
L-1	000	000	003	003	002	000	000	000	000	000	008
L-2	002	004	017	030	000	000	000	000	000	000	059
TOT	002	006	025	041	003	000	000	000	000	000	077

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	001	003	003	005	004	000	000	000	000	000	016
L-1	001	003	002	000	002	000	000	000	000	000	008
L-2	000	008	017	016	012	000	000	000	000	000	053
TOT	002	014	022	021	018	000	000	000	000	000	077

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	006	004	001	003	002	000	000	000	000	000	016
L-1	002	002	004	000	000	000	000	000	000	000	008
L-2	020	020	011	002	000	000	000	000	000	000	053
TOT	028	026	016	005	002	000	000	000	000	000	077

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	002	000	000	001	001	005	005	001	000	001	016
L-1	001	002	000	000	000	001	003	001	000	000	008
L-2	012	000	000	001	001	016	012	003	008	000	053
TOT	015	002	000	002	002	022	020	005	008	001	077

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	007	007	001	000	000	000	000	000	000	001	016
L-1	003	002	001	000	002	000	000	000	000	000	008
L-2	019	004	000	000	000	000	000	000	000	000	059
TOT	029	039	006	000	002	000	000	000	000	001	077

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	012	003	001	000	000	000	000	000	000	000	016
L-1	007	001	000	000	000	000	000	000	000	000	008
L-2	040	013	000	000	000	000	000	000	000	000	053
TOT	059	017	001	000	000	000	000	000	000	000	077

## CLASS NO.-01 (COL 77)

## QUESTION NO.-01

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	004	002	007	006	000	000	000	000	000	000	019
L-1	002	000	000	001	000	000	000	000	000	000	003
L-2	000	002	004	004	000	000	000	000	000	000	010
TOT	006	004	011	011	000	000	000	000	000	000	032

## QUESTION NO.-02

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	007	001	011	000	000	000	000	000	000	000	019
L-1	001	000	002	000	000	000	000	000	000	000	003
L-2	004	000	005	000	000	000	000	001	000	000	010
TOT	012	001	018	000	000	000	000	001	000	000	032

## QUESTION NO.-03

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	000	001	010	005	003	000	000	000	000	000	019
L-1	000	000	000	001	002	000	000	000	000	000	003
L-2	001	001	006	002	000	000	000	000	000	000	010
TOT	001	002	016	008	005	000	000	000	000	000	032

## QUESTION NO.-04

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	000	003	007	005	004	000	000	000	000	000	019
L-1	000	000	001	001	001	000	000	000	000	000	003
L-2	000	004	004	002	000	000	000	000	000	000	010
TOT	000	007	012	008	005	000	000	000	000	000	032

## QUESTION NO.-05

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	001	002	007	005	004	000	000	000	000	000	019
L-1	000	000	000	001	002	000	000	000	000	000	003
L-2	001	001	006	002	000	000	000	000	000	000	010
TOT	002	003	013	008	006	000	000	000	000	000	032

## QUESTION NO.-06

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	002	003	007	002	005	000	000	000	000	000	019
L-1	000	000	000	001	002	000	000	000	000	000	003
L-2	000	004	004	000	002	000	000	000	000	000	010
TOT	002	007	011	003	009	000	000	000	000	000	032

## QUESTION NO.-07

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	003	004	004	001	007	000	000	000	000	000	019
L-1	001	000	000	000	002	000	000	000	000	000	003
L-2	003	003	000	001	003	000	000	000	000	000	010
TOT	007	007	004	002	012	000	000	000	000	000	032

## QUESTION NO.-08

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	008	002	003	003	003	000	000	000	000	000	019
L-1	001	000	000	001	001	000	000	000	000	000	003
L-2	002	001	003	001	003	000	000	000	000	000	010
TOT	011	003	006	005	007	000	000	000	000	000	032

## QUESTION NO.-09

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	000	000	006	008	005	000	000	000	000	000	019
L-1	000	000	000	000	003	000	000	000	000	000	003
L-2	000	002	003	004	001	000	000	000	000	000	010
TOT	000	002	009	012	009	000	000	000	000	000	032

## QUESTION NO.-10

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	000	005	008	004	002	000	000	000	000	000	019
L-1	001	001	001	000	000	000	000	000	000	000	003
L-2	000	005	001	003	001	000	000	000	000	000	010
TOT	001	011	010	007	003	000	000	000	000	000	032

## QUESTION NO.-11

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	002	009	005	001	002	000	000	000	000	000	019
L-1	002	001	000	000	000	000	000	000	000	000	003
L-2	003	005	001	001	000	000	000	000	000	000	010
TOT	007	015	006	002	002	000	000	000	000	000	032

## QUESTION NO.-12

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	001	011	005	000	002	000	000	000	000	000	019
L-1	001	002	000	000	000	000	000	000	000	000	003
L-2	001	005	003	001	000	000	000	000	000	000	010
TOT	003	018	008	001	002	000	000	000	000	000	032

## QUESTION NO.-13

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	012	004	001	001	001	000	000	000	000	000	019
L-1	002	001	000	000	000	000	000	000	000	000	003
L-2	004	004	000	000	002	000	000	000	000	000	010
TOT	018	009	001	001	003	000	000	000	000	000	032

## QUESTION NO.-14

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	003	010	002	001	003	000	000	000	000	000	019
L-1	002	001	000	000	000	000	000	000	000	000	003
L-2	001	004	002	001	002	000	000	000	000	000	010
TOT	006	015	004	002	005	000	000	000	000	000	032

## QUESTION NO.-15

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	000	002	006	007	004	000	000	000	000	000	019
L-1	000	000	000	001	002	000	000	000	000	000	003
L-2	003	001	003	002	001	000	000	000	000	000	010
TOT	003	003	009	010	007	000	000	000	000	000	032

## QUESTION NO.-16

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	001	001	009	004	004	000	000	000	000	000	019
L-1	000	000	001	001	001	000	000	000	000	000	003
L-2	003	003	004	000	000	000	000	000	000	000	010
TOT	004	004	014	005	005	000	000	000	000	000	032

## QUESTION NO.-17

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	006	006	003	000	004	000	000	000	000	000	019
L-1	001	001	000	001	000	000	000	000	000	000	003
L-2	000	006	002	002	000	000	000	000	000	000	010
TOT	007	013	005	003	004	000	000	000	000	000	032



## QUESTION NO.-18

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	000	007	004	005	003	000	000	000	000	000	019
L-1	000	001	001	000	001	000	000	000	000	000	003
L-2	001	004	002	002	001	000	000	000	000	000	010
TOT	001	012	007	007	005	000	000	000	000	000	032

## QUESTION NO.-19

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	008	005	000	001	005	000	000	000	000	000	019
L-1	001	001	000	000	001	000	000	000	000	000	003
L-2	004	001	003	000	002	000	000	000	000	000	010
TOT	013	007	003	001	008	000	000	000	000	000	032

## QUESTION NO.-20

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	007	007	001	000	004	000	000	000	000	000	019
L-1	001	001	000	000	001	000	000	000	000	000	003
L-2	005	003	002	000	000	000	000	000	000	000	010
TOT	013	011	003	000	005	000	000	000	000	000	032

## QUESTION NO.-21

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	002	010	000	002	005	000	000	000	000	000	019
L-1	001	002	000	000	000	000	000	000	000	000	003
L-2	004	005	001	000	000	000	000	000	000	000	010
TOT	007	017	001	002	005	000	000	000	000	000	032

## QUESTION NO.-22

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	008	007	000	000	004	000	000	000	000	000	019
L-1	002	001	000	000	000	000	000	000	000	000	003
L-2	004	000	002	000	004	000	000	000	000	000	010
TOT	014	008	002	000	008	000	000	000	000	000	032

## QUESTION NO.-23

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	002	002	006	003	006	000	000	000	000	000	019
L-1	000	001	000	000	002	000	000	000	000	000	003
L-2	000	003	003	003	001	000	000	000	000	000	010
TOT	002	006	009	006	009	000	000	000	000	000	032

## QUESTION NO.-24

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	007	005	001	000	006	000	000	000	000	000	019
L-1	000	001	000	000	002	000	000	000	000	000	003
L-2	003	001	003	000	003	000	000	000	000	000	010
TOT	010	007	004	000	011	000	000	000	000	000	032

## QUESTION NO.-25

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	010	003	001	001	004	000	000	000	000	000	019
L-1	001	000	000	000	002	000	000	000	000	000	003
L-2	005	002	002	000	001	000	000	000	000	000	010
TOT	016	005	003	001	007	000	000	000	000	000	032

## QUESTION NO.-26

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	000	002	008	007	002	000	000	000	000	000	019
L-1	000	001	001	000	001	000	000	000	000	000	003
L-2	001	004	003	002	000	000	000	000	000	000	010
TOT	001	007	012	009	003	000	000	000	000	000	032

## QUESTION NO.-27

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	001	005	006	003	004	000	000	000	000	000	019
L-1	000	000	000	001	002	000	000	000	000	000	003
L-2	002	000	007	000	001	000	000	000	000	000	010
TOT	003	005	013	004	007	000	000	000	000	000	032

## QUESTION NO.-28

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	001	004	006	002	006	000	000	000	000	000	019
L-1	000	000	000	002	001	000	000	000	000	000	003
L-2	000	002	003	002	003	000	000	000	000	000	010
TOT	001	006	009	006	010	000	000	000	000	000	032

## QUESTION NO.-29

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	005	007	002	000	005	000	000	000	000	000	019
L-1	000	000	001	000	002	000	000	000	000	000	003
L-2	002	002	003	002	001	000	000	000	000	000	010
TOT	007	009	006	002	008	000	000	000	000	000	032

## QUESTION NO.-30

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	001	002	011	003	002	000	000	000	000	000	019
L-1	001	002	000	000	000	000	000	000	000	000	003
L-2	000	000	008	002	000	000	000	000	000	000	010
TOT	002	004	019	005	002	000	000	000	000	000	032

## QUESTION NO.-31

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	000	002	006	009	002	000	000	000	000	000	019
L-1	001	001	001	000	000	000	000	000	000	000	003
L-2	000	001	006	003	000	000	000	000	000	000	010
TOT	001	004	013	012	002	000	000	000	000	000	032

## QUESTION NO.-32

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	003	000	005	003	008	000	000	000	000	000	019
L-1	000	000	000	000	003	000	000	000	000	000	003
L-2	002	004	003	000	001	000	000	000	000	000	010
TOT	005	004	008	003	012	000	000	000	000	000	032

## QUESTION NO.-33

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	010	004	000	001	004	000	000	000	000	000	019
L-1	001	000	000	000	002	000	000	000	000	000	003
L-2	007	000	002	001	000	000	000	000	000	000	010
TOT	018	004	002	002	006	000	000	000	000	000	032

## QUESTION NO.-34

	0	1	2	3	4	5	6	7	8	9	TOT
L-0	011	003	001	000	004	000	000	000	000	000	019
L-1	001	000	000	000	002	000	000	000	000	000	003
L-2	006	001	001	002	000	000	000	000	000	000	010
TOT	018	004	002	002	006	000	000	000	000	000	032

APPENDIX VII

ANALYSIS AND SCORING OF  
GOVERNMENT CONTRACT ADMINISTRATION PERSONNEL  
QUESTIONNAIRE RESPONSES

# APPENDIX VII

## Class 00 Government Contract Administration Personnel

3. Do the work statements in contracts clearly identify the work included in the fixed price section as differentiated from over-and-above work?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	12	19	22	23	76
Percentage	15.8	25.0	28.9	30.3	100.0
Weight	4	3	2	1	
Score	63.2	75.0	57.8	30.3	226.3

4. Do the statement of work and the specifications of the contract precisely delineate the scope of overhaul and modification work?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	5	14	54	22	75
Percentage	6.7	18.7	45.3	29.3	100.0
Weight	4	3	2	1	
Score	26.8	56.1	90.6	29.3	202.8

5. Are required quality characteristics adequately defined in the work statement and specifications of the contract?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	18	11	26	15	70
Percentage	25.7	15.7	37.2	21.4	100.0
Weight	4	3	2	1	
Score	102.8	47.1	74.4	21.4	245.7

6. Does the U.S. Government require teardown inspection in a manner that facilitates verification of the condition coding of parts?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	2	7	11	3	23
Percentage	8.7	30.4	47.8	13.1	100.1
Weight	4	3	2	1	
Score	34.8	91.2	95.6	13.1	234.7

7. Are preliminary condition reports received from the U.S. Government before completion of the teardown inspections?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	7	7	4	2	20
Percentage	35.0	35.0	20	10	100.0
Weight	4	3	2	1	
Score	140.0	105	40	10	295

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8. Does the material requirements list adequately describe or identify the scope of work to be performed under the contract?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	11	3	6	5	25
Percentage	44.0	12.0	24.0	20	100.0
Weight	4	3	2	1	
Score	176.0	36.0	48.0	20	280.0

9. During the teardown inspection can you make a definite determination of whether a deficiency falls under the fixed price overhaul category, over-and-above category, or the modification category?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	0	2	9	12	23
Percentage	0	8.7	39.3	52.0	100.0
Weight	4	3	2	1	
Score	0	26.1	78.6	52.0	156.7

10. How often does late receipt of government furnished property adversely affect production schedules?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	1	11	10	7	29
Percentage	3.5	37.9	34.5	24.1	100.0
Weight	1	2	3	4	
Score	5.5	75.8	103.5	96.4	279.1

11. How often is government furnished property not properly identified when received? 155

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	7	15	6	2	30
Percentage	23.3	50	20	6.7	100.0
Weight	1	2	3	4	
Score	23.5	100.0	60	26.8	210.1

12. How often is government furnished property received in an unserviceable condition?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	3	18	8	1	30
Percentage	10	60	26.7	3.3	100.0
Weight	1	2	3	4	
Score	10	120	80.1	13.2	223.3

13. How often do you find it difficult to maintain accountability for government furnished property throughout the course of production?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	18	9	1	1	29
Percentage	62.1	31.1	3.4	3.4	100.0
Weight	1	2	3	4	
Score	62.1	62.2	10.2	13.6	148.1

14. How often do government furnished property disposal regulations cause significant problems?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	6	15	4	2	27
Percentage	22.3	55.5	14.8	7.4	100.0
Weight	1	2	3	4	
Score	22.3	111.0	44.4	29.6	207.3

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15. How often do work requests for over-and-above work get processed in sufficient time so as not to adversely affect production schedules?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	3	3	9	10	25
Percentage	12.0	12.0	36.0	40.0	100.0
Weight	4	3	2	1	
Score	48.0	36.0	72.0	40.0	196.0

16. How often is the criteria regarding economic repair limitations precise and clear?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	4	4	14	5	27
Percentage	14.8	14.8	51.9	18.5	100.0
Weight	4	3	2	1	
Score	59.2	44.4	103.8	18.5	225.9



17. How often do you find that unserviceable but economically repairable items cannot be reworked because of the terms of the contract?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	7	13	5	3	28
Percentage	25.0	46.4	17.8	10.8	100.0
Weight	1	2	3	4	
Score	25.0	92.8	58.9	43.2	214.4

18. Do you experience delays in production due to difficulty in obtaining government furnished material?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	1	12	7	7	27
Percentage	3.7	44.5	25.9	25.9	100.0
Weight	1	2	3	4	
Score	3.7	89.0	77.7	103.6	274.0

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19. How often do you experience delays in production due to difficulty in obtaining government furnished special tooling?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	13	7	3	1	24
Percentage	54.2	29.2	12.5	4.1	100.0
Weight	1	2	3	4	
Score	54.2	58.4	37.5	16.4	166.5

20. How often do you experience delays in production due to difficulty in obtaining government furnished technical orders and technical data?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	13	11	3	0	27
Percentage	48.1	40.7	11.2	0	100.0
Weight	1	2	3	4	
Score	48.1	81.4	33.6	0	163.1

21. How often do you experience delays in production due to difficulty in obtaining government furnished repairable units?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	7	17	1	2	27
Percentage	25.9	63.0	3.7	6.4	100.0
Weight	1	2	3	4	
Score	25.9	126	11.1	25.6	188.6

22. Do you experience situations where substitute materials for category 3, logistic support items, would expedite production but are not allowable under the terms of the contract?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	14	8	2	0	24
Percentage	58.3	33.3	8.4	0	100.0
Weight	1	2	3	4	
Score	58.3	66.6	25.2	0	150.1

23. Are the requirements of MIL-Q-9858A realistic to your type production?

	a. completely	b. nearly	c. partially	d. not at all	total
Response	2	6	9	6	23
Percentage	8.7	26.1	39.1	26.1	100.0
Weight	1	2	3	4	
Score	8.7	52.2	117.3	104.4	282.6

24. Are the requirements of MIL-I-45208A realistic to your type production?

	a. completely	b. nearly	c. partially	d. not at all	total
Response	10	7	4	0	21
Percentage	47.6	33.3	19.1	0	100.0
Weight	1	2	3	4	
Score	47.6	66.6	57.3	0	171.5

25. Do excessive delays occur in processing change orders through the contracting office?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	16	5	3	1	25
Percentage	64.0	20.0	12.0	4.0	100.0
Weight	1	2	3	4	
Score	64.0	40.0	36.0	16.0	156.0

26. Are technical questions that are referred to government authorities answered promptly?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	1	7	12	9	29
Percentage	3.4	24.1	41.4	31.1	100.0
Weight	4	3	2	1	
Score	13.6	72.3	82.8	31.1	199.8

27. Do government quality assurance standards provide clear guidance for your quality control program?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	3	5	13	4	25
Percentage	12.0	20.0	52.0	16.0	100.0
Weight	4	3	2	1	
Score	48.0	60.0	104.0	16.0	228.0

28. Do statistical sampling techniques now used provide a reliable estimate of total product quality?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	1	6	9	6	22
Percentage	4.5	27.3	40.9	27.3	100.0
Weight	4	3	2	1	
Score	18.0	81.9	81.8	27.3	209.0

29. Do quality assurance standards received from various governmental agencies differ significantly?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	7	9	6	2	24
Percentage	29.2	37.5	25.0	8.3	100.0
Weight	1	2	3	4	
Score	29.2	75.0	75.0	33.2	212.4

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30. Are progress meetings held with government representatives?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	2	4	19	5	30
Percentage	6.7	13.4	63.3	16.6	100.0
Weight	4	3	2	1	
Score	26.8	40.2	126.6	16.6	210.2

31. Are potential problem areas discussed at progress meetings?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	1	4	13	12	30
Percentage	3.3	13.4	43.3	40.0	100.0
Weight	4	3	2	1	
Score	13.2	40.2	86.6	40.0	180.0

32. Are copies of AFTO Form 64 useful in measuring the over-all effectiveness of your production and quality control procedures?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	5	4	8	3	20
Percentage	25.0	20.0	40.0	15.0	100.0
Weight	4	3	2	1	
Score	100.0	60.0	80.0	15.0	255.0

33. How often is production delayed because of the non-availability of a government inspector at the time needed?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	18	4	2	2	26
Percentage	69.2	15.4	7.7	7.7	100.0
Weight	1	2	3	4	
Score	69.2	30.8	23.1	30.8	153.9

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34. How often is production delayed because of the lack of a government inspector possessing the requisite technical skills?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	18	4	2	2	26
Percentage	69.2	15.4	7.7	7.7	100.0
Weight	1	2	3	4	
Score	69.2	30.8	23.1	30.8	153.9

APPENDIX VIII

ANALYSIS AND SCORING OF  
CONTRACTOR PERSONNEL  
QUESTIONNAIRE RESPONSES

# APPENDIX VIII

## Class 01 Civilian Contractor Personnel

3. Do the work statements of the contracts clearly identify the work included in the fixed price section as differentiated from over-and-above work?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	1	2	16	8	27
Percentage	3.7	7.4	59.2	29.7	100.0
Weight	4	3	2	1	
Score	14.8	22.2	118.4	29.6	185.1

4. Do the statement of work and the specifications of the contract precisely delineate the scope of overhaul and modification work?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	0	7	12	8	27
Percentage	0	25.9	44.4	29.7	100.0
Weight	4	5	2	1	
Score	0	37.7	88.8	29.7	196.2

5. Are required quality characteristics adequately defined in the work statement and specifications of the contract?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	2	3	13	8	26
Percentage	6.7	11.5	50	30.8	100.0
Weight	4	3	2	1	
Score	26.8	34.5	100	30.8	192.1

6. Does the contractor conduct the teardown inspection in a manner that facilitates verification of the condition coding of parts?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	5	7	31	23	66
Percentage	7.6	10.6	47.0	34.8	100.0
Weight	4	3	2	1	
Score	30.4	31.8	94.	34.8	191.

7. Are preliminary condition reports received from the using command before completion of the teardown inspection?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	13	10	25	17	65
Percentage	20.0	15.4	38.5	26.1	100.0
Weight	4	3	2	1	
Score	80.	46.2	77.	26.1	229.3

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8. Do the material requirements adequately list, describe or identify the scope of work to be performed under the contract?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	9	14	26	22	71
Percentage	12.7	19.7	36.6	31.	100.0
Weight	4	3	2	1	
Score	50.8	59.1	73.2	31.0	214.1

9. During the teardown inspection can you make a definite determination of whether a deficiency falls under the fixed price overhaul category, over-and-above category, or the modification category?



	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	3	16	28	22	69
Percentage	4.3	23.2	40.6	31.9	100.0
Weight	4	3	2	1	
Score	17.2	69.6	81.2	31.9	199.9

10. How often does late receipt of government furnished property adversely affect production schedules?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	18	25	23	9	75
Percentage	24.0	33.3	30.7	12.0	100.0
Weight	1	2	3	4	
Score	24.0	66.6	92.1	48.0	230.7

11. How often is government furnished property not properly identified when received?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	24	44	6	2	16
Percentage	31.6	57.9	7.9	2.6	100.0
Weight	1	2	3	4	
Score	31.6	115.8	23.7	10.4	181.5

12. How often is government furnished property received in an unserviceable condition?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	17	38	18	4	77
Percentage	22.1	49.3	23.4	5.2	100.0
Weight	1	2	3	4	
Score	22.1	98.6	70.2	20.8	211.7

13. How often do you find it difficult to maintain accountability for government furnished property throughout the course of production?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	36	17	12	1	66
Percentage	54.5	25.8	18.2	1.5	100.0
Weight	1	2	3	4	
Score	54.5	51.6	54.6	6.0	166.7

14. How often do government furnished property disposal regulations cause significant problems?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	30	28	4	4	66
Percentage	45.5	42.3	6.1	6.1	100.0
Weight	1	2	3	4	
Score	45.5	84.6	18.3	24.4	172.8

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15. During the production phase does the contractor submit work requests for over-and-above work as soon as a discrepancy is discovered?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	3	2	25	43	73
Percentage	4.1	2.7	34.3	58.9	100.0
Weight	4	3	2	1	
Score	16.4	8.1	68.6	58.9	152.0

16. How often is the criteria regarding economic repair limitations precise and clear?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	12	16	34	11	73
Percentage	16.4	21.9	46.6	15.1	100.0
Weight	4	3	2	1	
Score	65.6	65.7	93.2	15.1	239.6

17. Does the contractor make full use of the rework procedure?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	4	17	34	20	75
Percentage	5.3	22.7	45.3	26.7	100.0
Weight	4	3	2	1	
Score	21.2	68.1	90.6	26.7	206.6

18. How often do difficulties in obtaining government furnished property cause delays in production?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	19	28	24	5	76
Percentage	25.0	36.8	31.6	6.6	100.0
Weight	1	2	3	4	
Score	25.0	73.6	94.8	26.4	219.8

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19. How often do difficulties in obtaining government furnished special tooling cause delays in production?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	37	23	4	2	66
Percentage	56.1	34.8	6.1	3.0	100.0
Weight	1	2	3	4	
Score	56.1	69.6	18.3	12.0	156.0

20. How often do difficulties in obtaining government furnished technical orders and technical data cause delays in production?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	41	23	6	4	74
Percentage	55.4	31.1	8.1	5.4	100.0
Weight	1	2	3	4	
Score	55.4	62.2	24.3	21.6	163.5

21. How often do difficulties in obtaining government furnished reparables cause delays in production?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	36	27	7	1	71
Percentage	50.7	38.0	9.9	1.4	100.0
Weight	1	2	3	4	
Score	50.7	76.0	29.7	5.6	162.0

22. Do you experience situations where substitute material for category 3, logistic support items would expedite production but are not allowable under the terms of the contract?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	38	19	2	1	60
Percentage	63.3	31.7	3.3	1.7	100.0
Weight	1	2	3	4	
Score	63.3	63.4	9.9	6.8	143.4
					170

23. Does the Contractor's quality control program meet the requirements of MIL-Q-9858A?

	a. completely	b. nearly	c. partially	d. not at all	total
Response	15	25	22	1	63
Percentage	23.8	39.7	34.9	1.6	100.0
Weight	1	2	3	4	
Score	23.8	79.4	104.7	6.4	207.9

24. Are the requirements of MIL-I-45208A realistic to your type production?

	a. completely	b. nearly	c. partially	d. not at all	total
Response	21	21	18	1	61
Percentage	34.4	34.4	29.6	1.6	100.0
Weight	1	2	3	4	
Score	34.4	68.8	88.8	6.4	198.4

25. Do excessive delays occur in processing change orders through the contracting office?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	29	26	6	7	68
Percentage	42.7	38.2	8.8	10.3	100.0
Weight	1	2	3	4	
Score	42.7	76.4	26.4	41.2	186.7

26. Are technical questions that are referred to the cognizant AMA answered promptly?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	5	17	31	19	72
Percentage	6.9	23.6	43.1	26.4	100.0
Weight	4	3	2	1	
Score	27.6	70.8	86.2	26.4	211.0

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27. Do government quality assurance standards provide clear guidance for the assessment of contractor performance?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	7	3	33	26	69
Percentage	10.1	4.3	47.9	37.7	100.0
Weight	4	3	2	1	
Score	40.4	12.9	95.8	37.7	186.8

28. Do statistical sampling techniques now used provide a reliable estimate of total product quality?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	10	12	17	19	58
Percentage	17.2	20.7	29.3	32.8	100.0
Weight	4	3	2	1	
Score	68.8	62.1	58.6	32.8	222.3

29. Do quality assurance standards received from various AMA's differ significantly?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	15	26	11	5	57
Percentage	26.3	45.6	19.3	8.8	100.0
Weight	1	2	3	4	
Score	26.3	91.2	57.9	35.2	210.6

30. Are progress meetings held with contractor's representatives?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	7	20	27	16	70
Percentage	10.0	28.6	38.6	22.8	100.0
Weight	4	3	2	1	
Score	40.0	85.8	77.2	22.8	225.8

31. Are potential problem areas discussed at progress meetings?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	5	11	21	23	70
Percentage	7.1	15.7	44.4	32.8	100.0
Weight	4	3	2	1	
Score	28.4	47.1	88.8	32.8	197.1

32. Are copies of AFTO Form 64 useful in measuring the over-all effectiveness of the contractor's overhaul and quality procedures?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	14	16	19	18	67
Percentage	20.9	23.9	28.3	26.9	100.0
Weight	4	3	2	1	
Score	83.6	71.7	56.6	26.9	238.8

33. How often are you unable to make an inspection at the time requested by the contractor because of your workload?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	14	29	20	2	65
Percentage	21.5	44.6	30.8	3.1	100.0
Weight	1	2	3	4	
Score	21.5	89.2	92.4	12.4	215.5

34. How often is production delayed because of the need for a government inspection with technical skills other than those available within your office?

	a. rarely	b. occasionally	c. frequently	d. very frequently	total
Response	53	15	1	0	69
Percentage	76.8	21.7	1.5	0	100.0
Weight	1	2	3	4	
Score	76.8	43.4	4.5	4	128.7

APPENDIX IX

CORRESPONDENCE CONCERNING FUNDING  
OF MATERIEL



C O P Y

AIRPONENTS INC.

25 Buena Vista Avenue  
Lawrence L.I., New York

Cedarhurst 9-6550 - 1

3 March 1960

COLONEL L. OCAMB  
Chief, NYAPD  
111 East 16th Street  
New York City, New York

Subject: Contracts AF 41(608)11023 / 11029

Dear Sir:

I would like to call to your attention the assistance and cooperation in resolving problems by Mr. H. Lindo, Contracting Officer, and Mr. T. Wiezbicki, Production Specialist from NYAPD Office. You are well aware of the difficulties being encountered with Overhaul and Maintenance Contracts. The assistance by Mr. Lindo and Mr. Wiezbicki have proved invaluable in resolving problems which would otherwise have delayed delivery on the subject Overhaul and Maintenance Contracts. Obtaining additional funds over and beyond those obligated for the basic call were effected through the combined efforts of both gentlemen. A plan has been proposed by both gentlemen from your office relative to obtaining additional obligated funds to cover a three (3) month projected period (CFP in lieu of GFP program). The Buyer on the subject contract, Mr. Morales at Kelly Air Force Base, was receptive to this proposition. This plan will eliminate unnecessary paper work when requesting additional obligated funds by not processing such paper work on the average of a weekly basis.

Several thousand requisitions have been processed by our company for GFP and several hundred returned coded Local Purchase. You can readily understand the saving effected due to the fact that a bank will be established, and even if the funds are excess they can be deobligated, eliminating repetitive processing for additional funds on a piece meal basis.



APPENDIX X

Part 21

AIR FORCE PROCUREMENT INSTRUCTION

**Part 21—Work Request Procedures for Over and Above Work on  
Maintenance, Overhaul and Modification Contracts**

**51-2100 Scope of Part.** This part concerns responsibilities and procedures for processing and approval of: (i) work requests—inseverable and (ii) work requests—severable, issued pursuant to the Work Request clause (see AFPI 7-1065).

**51-2101 Applicability of Part.** This part applies to contract management regions and AFLC field procurement activities, including APRE and APRFE.

**51-2102 Definition.**

(a) **Work Request—Inseverable.** An order for supplies or services so inseverable from the basic end item of work that failure to perform by the contractor would preclude performance of the basic work contemplated by the contract. For procedural reasons, the inseverable items of work require the issuance of work requests by the administrative contracting officer prior to performance by the contractor, even though the contract provides that the contractor is obligated to furnish the items and the Government obligated to order such item, if the requirement arises. Obligations for these items are recorded at the time the basic contract is definitized. The work request—inseverable is merely an administrative action by the contracting officer identifying and pricing the work to be performed. (Example: authorization to provide parts required to overhaul the basic end item when the Government is unable to furnish same as GFP.)

(b) **Work Request—Severable.** An order for supplies or services, the nature of which could not be determined at the inception of the contract, and wherein failure to furnish the supplies or perform these services would not preclude the contractor from performing the basic contract task. Obligations will be recorded at the time of issuing work requests—severable.

**51-2103 Use of Work Requests.**

(a) **Work Request—Inseverable.** This type of work request will be used to cover only indefinite quantity items which meet all of the following conditions: (i) are so inseverable from the basic end item that failure to perform the indefinite quantity item would preclude performance of the basic work contemplated by the contract, (ii) the contract provides that the contractor is obligated to furnish the indefinite quantity item and the Government obligated to order such item, if the requirement arises, (iii) the estimated cost of the indefinite quantity item is a bona fide estimate with factual support based on experience, and (iv) the indefinite quantity item relates to an end item that is definite in quantity.

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## CONTRACT ADMINISTRATION

(b) **Work Request - Severable.** This work request procedure is properly applicable only to items of work, over and above that work which is required to fulfill the basic purpose of the contract, and for which the Government has no obligation to place an order. This procedure will not be used to effect new procurement that should be the subject of a separate contract. Work requests--severable will not be used as a substitute for or in lieu of issuing supplemental agreements, CCNs, calls, or other contractual documents.

(c) Unless otherwise provided in the contracts, the administrative contracting officer (ACO) is the only individual authorized to issue a work request, however, the ACO is not authorized to issue a work request unless:

(1) The contract contains work request clause which permits issuance of work requests.

(2) There has been a complete review of the necessity for the work request and it has been determined that such work is necessary and was contemplated by the contract.

(3) A fixed price has been negotiated between the contractor and ACO, except where the contract authorizes commencement of the work prior to arrival at firm prices.

(4) Sufficient and proper funds are determined to be available.

## 51-2101 Processing of Work Requests.

(a) Work requests will be in writing, serially numbered, dated, and bear the number and description of aircraft, engines, components, etc., affected. Work requests will also indicate unit and total prices to be paid (except when issued according to subparagraph 54.2103(c)(3) above) and period of performance. Separate work requests will be issued for severable and inseverable items of work. In addition, work requests--severable will contain correct citation of funds from which payment will be made. The ACO will maintain files containing all work requests issued, as well as supporting data showing coordination of interested offices and contractor's acceptance.

(b) The work request--severable will be used as an obligating document according to AFPI 53.312(a).

(c) The ACO should develop internal procedures that will indicate that the factors listed below and other appropriate factors have been considered at the time of issuing the work request:

(1) The quantity to be reworked is required.

(2) The delivery schedule is realistic and the effective point has been ascertained.

(3) Man-hours and material required are fair and reasonable.

(4) Necessary specifications or technical directives are available.

(5) Whether all GFP received for repair has been listed on the work request.


24 Jul 1961  
Rev 8

## WORK REQUESTS

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(6) Whether reparable received are being placed on work requests. 

(7) Whether all GFP listed on the work request is physically on hand and input from an appropriate source.

(8) Fairness and reasonableness of the unit and total price.   
The above items, to be considered when reviewing work requests, are a guide only, and the ACO will conduct his review to the extent and in such a manner as to assure that the work request to be issued, is in the best interests of the Government and contractually covered.

(d) Work requests will be distributed according to AFPI 53-606.

**SPECIAL CLAUSES**

**7-4065 Work Requests.** The following clause will be used in maintenance, overhaul, and modification contracts whenever desired to cover the subject matter. (See Section LIV, Part 21.)

**WORK REQUESTS (FEB. 1961)**

(a) **Pricing Procedures for Inseverable Type Work.** The Contractor shall notify the Contracting Officer, in writing, of work that is required to be performed under items \_\_\_\_\_ hereof promptly after such work is encountered. The Contracting Officer will indicate his concurrence as to the extent of the work to be performed by issuing a work request. The Contractor should furnish a quotation for the work to be performed within 30 days after receipt of the work request, and the parties shall forthwith commence negotiations to arrive at a reasonable price and delivery schedule therefor. Upon agreement an amendment to the work request shall be issued setting forth the agreed prices and delivery schedules.

(b) **Ordering of Additional Work Severable.** The following procedure will be used to order additional work of the type covered by Items \_\_\_\_\_ of the contract. Such work will be called for by the issuance of work requests. It is agreed that work requests may be issued at the sole option of the Contracting Officer during the term of the contract, and that the Government has no obligation under this paragraph b to issue any such work request. Upon receipt of a work request, the Contractor shall quote a price and delivery schedule for the work called for but shall not proceed with the work until such price is approved by the Contracting Officer, provided, however, whenever the Contracting Officer determines that it is in the interest of the Government to not delay performance of the work until a price is negotiated, he may specify in the work request that the Contractor is authorized to proceed forthwith. Within \_\_\_\_\_ days after receipt of such order, and in every case prior to completion of the work called for therein, the parties shall negotiate a price and delivery schedule for the work order, and the work request shall be amended accordingly.

(c) Work requests issued under paragraphs a or b above shall bear the number of this contract, be serially numbered, dated and signed by the Contracting Officer. They shall set forth the work to be performed and shall refer to the contract item pursuant to which the request was issued. They shall include, or be amended to include the price of the work and the delivery schedule therefor. In addition, work requests issued under paragraph b above shall cite the funds allotted for payment of the work ordered thereby. The provisions of the contract shall be applicable to all work requests issued under this clause. Failure to agree upon a reasonable price shall be considered a "dispute concerning a question of fact" within the meaning of the clause of this contract entitled "Disputes." Amendments to work requests may be issued subject to the same conditions as the original work request. The Contractor's concurrence as to the terms of the work request or amendment will be evidenced by signing the respective document. The term "work" as used herein includes both supplies and services to the extent covered by the referenced contract item. When the clauses are used in CPFF contracts, the references as to price will be changed to estimated cost and fee.

**7-4066 Restrictions on Printing.** Any contract which requires the reproduction of reports, data, or other written material will include the following clause. Deviations therefrom may be authorized by the con-

APPENDIX XI

OKLAHOMA CITY AIR MATERIEL AREA  
DIRECTORATE OF PROCUREMENT AND PRODUCTION  
OPERATING INSTRUCTION NO. 70-205



DIRECTORATE OF  
PROCUREMENT AND PRODUCTION  
OPERATING INSTRUCTION  
NO. 70-205

DIRECTORATE OF PROCUREMENT AND PRODUCTION  
OKLAHOMA CITY AIR MATERIEL AREA  
Tinker Air Force Base, Oklahoma  
20 April 1966

### Procurement

#### PROCEDURES FOR ANALYZING AND PROCESSING WORK REQUESTS

**PURPOSE:** To establish procedures to be followed by OCAMA Detachments in reviewing, analyzing, processing and approving work requests prescribed in the work request clause contained in Overhaul and Maintenance Contracts.

**1. RESPONSIBILITY:** It is the responsibility of the ACO to develop internal procedures which will assure timely and effective processing of work requests in the best interests of the Government and to assure work tasks involved are contractually covered.

**2. PROCEDURES:**

a. Work requests will be analyzed by the indicated functional element to determine that:

- (1) Quantity to be reworked is required - Production element.
- (2) Delivery schedule is realistic and the effective point has been ascertained - Production element.
- (3) Manhours and material required are fair and reasonable - Production element.
- (4) Necessary specifications or technical directives are available - Quality element.
- (5) All GFP received for repair has been listed on the work request - Property element.
- (6) Preparables received are being placed on work requests - Property element.
- (7) All GFP listed on the work request is physically on hand and input from an appropriate source - Production element.
- (8) Unit and total prices are fair and reasonable - Production element or Price Analyst.

b. The above items will be used as a guide to support the Administrative Contracting Officer (ACO) in negotiations with the contractor, the extent of which shall be a matter of individual determination.

OPR: \_\_\_\_\_ OCFOI:  
DISTRIBUTION: \_\_\_\_\_ D:

OCPOI 70-205

3. A funds control record will be established to insure adequate control of funds committed for the issuance of work orders. In this connection, subsequent increases or decreases to the fund control will be recorded immediately upon receipt of the source document. Upon receipt of the work request, with the previously approved manhours, the dollar amount of each respective contract line item is posted on the funds control record against the obligation ceiling. This will preclude approval of any work request without adequate fund coverage. This record will also prove beneficial in the timely release of excess funds.

4. Upon receipt of the work request, with previously approved manhours, the document will be signed by the ACO and will reflect the manhours and/or technical requirements approval signature of the Industrial Specialist. If the manhours proposed by the contractor cannot be agreed upon, or in the event a dispute develops as to whether a technical work statement falls within the meaning and intent of the work request clause, before issuance, the ACO will utilize every resource deemed appropriate to resolve the differences. Distribution of work requests will be in accordance with AFPI 53-606.



PHILIP J. KUHLE, Colonel, USAF  
Director, Procurement & Production

APPENDIX XII

COMPARISON OF MIL-Q-9858, MIL-Q-9858A  
AND MIL-I-45208A

COMPARISON

MIL-Q-9858, MIL-Q-9858A AND MIL-I-45208A

OPR: RCQB

DISTRIBUTION:

CLOMD (150)	DSOMD(125)	MICMD (125)	GEAPPRO (45)
CHOMD (150)	DEOMD(150)	SLCMD (100)	TUAPPRO (45)
DNOMD (125)	INOMD(125)	GDAPPRO (80)	WIAFPRO (90) RCQB(60)
BOMR(5)	WCMR(5)	Hq APSC(SCKAQ) (10)	Hq AFLC(MCPKQ) 10).

MIL-Q-9858

**1.1 SCOPE:** Requires QC system to assure supplies meet quality standards of contract. System subject to surveillance by government representative. Procedures subject to disapproval.

**1.2 Applicability:** Applies to all supplies or services on which government inspection is required, either at prime or subcontractor facilities.

**Exceptions:** Commercial supplies, catalog items, government standard supplies ordered by commercial designation, housekeeping or service supplies, R&D studies, not involving supplies, facilities, raw materials, technical and engineering data, etc.

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MIL-Q-9858A

**1.1 SCOPE:** Requires QC system to assure supplies meet quality standards of contract. System subject to surveillance by government representative. Procedures subject to disapproval. Written notice of acceptability of quality program optional.

**1.2 Applicability:** Applies to all supplies or services on which government inspection is required, either at prime or subcontractor facilities.

**Exceptions:** Not for supplies for which MIL-145208A applies. Not for occasional services or R&D studies not involving fabrication of articles.

**1.3** Requires an effective and economical program in consonance with contractor's other administrative and technical programs. Based on consideration of technical and manufacturing aspects of production, all supplies and services in-plant or at any other source to be controlled at all points to assure conformance to contract. Program to provide for prevention and detection of discrepancies and positive corrective action. Objective evidence of quality to be readily available to government representative. Authority and responsibility of those (personnel) in charge of the design of the product, tests, production quality, to be clearly stated. Program shall facilitate determinations of effects of quality deficiencies and quality on price. Facilities and standards shall be effectively managed (drawings, engineering changes, measuring equipment necessary for required quality). Program shall include an effective control of purchased materials and subcontracted work. In-plant work shall be controlled completely. Program shall include effective execution of responsibilities shared jointly with the government or related to government functions (government property, government source inspection).

MIL-T-145208A

**1.1 SCOPE:** Establishes requirement for inspection system to substantiate product conformance to contract requirements. Establishes inspection and tests necessary to substantiate product conformance to drawings, specifications, and contract requirements.

**1.2.1 Applicability:** Applies to all supplies or services when referenced in item specification, contract or order.

MIL-Q-9858

1.3 Significance: Specification and any implementing procedure shall be in addition to and not in derogation of other contract requirements

If inconsistencies exist between the contract and this specification, contract shall control.

1.5 (Contains requirement in excess of MIL-I-45208A)

MIL-Q-9858A

1.4 Same as MIL-Q-9858

MIL-I-45208A

1.1 Requirements of this specification are in addition to inspections and tests in applicable specifications and other contractual documents.

1.2.2 Same as MIL-Q-9858A

1.2.3

Option: This specification contains fewer requirements than MIL-Q-9858A. Contractor may use 9858A in whole or in part whenever 45208A is specified provided no increase in price is involved. (Permits one uniform system in event contractor already complying with 9858A)

2.1 Amendments and Revisions When specification is amended or revised subsequent to contractual effective date, contractor may follow the amended or revised specification provided there is no increase in price. The contractor shall not be required to follow the amended or revised specification except as a change in the contract. If the contractor elects to follow the amended or revised specification he shall notify the government representative in writing.

2.2 Same as MIL-Q-9858

2.2 Same as MIL-Q-9858A

MIL-Q-9858

3.1 Outline: Contractor shall maintain an effective economical QC system adjusted to suit the type and phase of procurement (R&D or Production). System shall be based upon complexity of product, quantity, interchangeability, reliability and manufacturing techniques; shall assure control of quality maintained in all areas of contractor performance; shall provide for prevention and ready detection of discrepancies, timely and positive corrective action; contractor shall make objective evidence of quality conformance readily available to government representative.

MIL-Q-9858A

3.1 Organization: Effective management for quality shall be clearly prescribed by the contractor. Personnel performing quality functions shall have sufficiently well defined responsibility, authority, and organizational freedom to identify and evaluate quality problems and to initiate, recommend or provide solutions. Management regularly shall review adequacy of quality program. Quality program requirements as used herein identifies collective requirements of this specification. It does not mean that fulfillment is the responsibility of any single contractor's organizational function or personnel.

MIL-I-45203A

3.1 Contractor Responsibility: Contractor shall maintain an inspection system to assure all supplies and services submitted for acceptance conform to contract requirements. Contractor shall perform inspection and tests required to substantiate product conformance to drawings, specifications, and contract requirements. Inspection system shall be documented and available for review by government representative prior to initiation of production and throughout the life of the contract. Written notice from government representative of the acceptability or nonacceptability of the system is optional. Contractor shall notify the government representative, in writing, of any change to the system. The system shall be subject to disapproval if changes would result in nonconforming of product.

3.2 The contractor, during the earliest phase of contract performance, shall conduct a complete review of requirements to identify and make timely provisions for the special controls, processes, tests, equipment, (etc.) and skills required for assuring product quality. Initial planning will recognize the need and provide for research when necessary to produce inspection and testing techniques, instrumentation, and correlation of inspection and test results with manufacturing methods and processes; provide appropriate review and action to assure compatibility of manufacturing, inspection, testing, and documentation.

MIL-Q-9850MIL-Q-9858AMIL-I-45208A3.2 Description of Procedures

Contractor shall provide and maintain a description of procedures for control of quality. Description may be a compilation of existing material. Description of quality control system shall be available to the government representative.

3.3 Work Instructions

Quality program shall assure all work effecting quality shall be prescribed in clear and documented instructions (covering purchases, handling, machining, assembling, fabrication, processing, inspection, testing, modification, installation and any other treatment of product, facility, standards, or equipment from the ordering of material to the dispatch of shipments).

3.2.1 Inspection and Testing Documentation

Inspection and testing shall be prescribed by clear complete and current instructions. Instruction shall assure inspections and tests as required by the contract. Criteria for approval and rejection of product shall be included.

3.6 Quality Control Records

Contractor shall maintain adequate records throughout all situations of contract performance of inspection and tests; shall assure accuracy of inspection and test equipment and other control media. All QC records shall be available for the government representative and copies of individual records shall be furnished upon request.

3.4 Quality Control Records

Contractor shall maintain and use any records or data essential to economical and effective operation of his quality program. Records shall be available for review by government representative, and copies of individual records shall be furnished upon request. Records are considered to be one of the principal forms of objective evidence of quality. The program shall assure that records are complete and reliable. Inspection and testing records shall indicate nature of observations, number of observations and number and type of deficiencies. Records for monitoring work performance and for inspection and tests shall indicate acceptability of work or products and the action taken on deficiencies. Program must provide for analysis and use of records as a basis for management action.

3.2.2 Records

Contractor shall maintain adequate records of all inspection and tests. Records shall indicate nature and number of observations and number and type of deficiencies found, quantities approved and rejected, and the nature of corrective action taken as appropriate.



MIL-Q-98583.17 Corrective Action

Contractor shall take prompt action to correct conditions which might result in defective products or services; use feedback data generated by using activities as well as that generated in-plant.

MIL-Q-9858A3.5 Corrective Action

The quality program shall detect promptly and correct assignable conditions adverse to quality. All elements which could result in defective supplies or services could create excessive losses or costs must be identified and changed as a result of the quality program. Corrective action will extend to the performance of all suppliers and vendors and will be responsive to data and product forwarded by users. Corrective action shall include, as a minimum:

a. Analysis of data and examination of product scrapped or reworked to determine extent and causes.

b. Analysis of trends in processes are performance of work to prevent nonconforming product.

c. Introduction of required improvements and corrections including effectiveness or corrective action taken.

3.6 Costs Related to Quality

Contractor shall maintain and use quality cost data as a management element of the quality program. These data identify the cost of prevention and correction of nonconforming supplies (labor, material), involved in material spoilage caused by defective work, correction of defective work, and for quality control exercised by the contractor at subcontractor's and vendors. Specific quality cost data to be maintained and used will be determined by the contractor. These data shall, on request, be identified and made available for "on-site" review by the government representative.

MIL-I-45208A3.2.3 Corrective Action

Contractor shall Take prompt action to correct assignable conditions which have resulted or could result in submission to the government of nonconforming supplies and services.

MIL-Q-9858MIL-Q-9858AMIL-I-45208A3.3 Drawing and Change Control

A procedure shall be maintained by the contractor to assure that the latest drawings, technical requirements and contract change information will be available at the time and place of contractor inspection. Concurrently with the effectivity of revised drawings or changes, it shall assure that obsolete information is removed from all points of issue and use. All changes shall be processed to assure accomplishment on the affected supplies at the specific effective points. The contractor shall maintain a record of the point of effectivity of changes. This record shall be readily available to the government representative.

4.1 Drawings, Documentation, and Changes

A procedure shall be maintained to assure the adequacy, completeness, and currentness of drawings and to control changes in design. The contractor shall assure that the effectivity point of changes are met and that obsolete drawings and change requirements are removed from all points of issue and use. Effectivity points shall be recorded and records kept and made available to the government representative.

With respect to design drawings and design specifications, a procedure shall be maintained that shall provide for the evaluation of their engineering adequacies and an evaluation of the adequacies of proposed changes, encompassing both the adequacies in relation to standard engineering and design practices and the adequacy with respect to the design and purpose of the product.

With respect to supplemental specifications process instructions, production engineering, industrial engineering instructions and work instructions relating to a particular design, the contractor shall be responsible for a review of their adequacy, currentness and completeness. The quality program must provide complete coverage of all information necessary to produce an article in complete conformity with requirements of the design.

The quality program shall assure that there is complete compliance with contract requirement for the proposal, approval, and effecting of engineering changes; for monitoring effectively compliance with contractual engineering changes requiring approval by government design authority; monitoring effectively the drawing changes of lesser importance not requiring approval by government design authorities. Provide for delivery of correct drawings and change information to the government in connection with data acquisition (includes full compliance with contract requirements concerning rights and data both proprietary and other). Drawing and change control extends to all subcontractors and vendors.

3.2.h Drawing and Changes

The contractor's inspection system shall provide procedures to assure that the last drawings, specifications and instructions, required by the contract and authorized changes thereto are used for fabrication, inspection and testing.

MIL-Q-98583.4 Measuring & Testing Equipment

Unless otherwise specified in the contract, the contractor shall provide and maintain gages and other measuring and testing devices necessary to assure that supplies conform to contract requirements. These shall be calibrated against measurement standards at established periods to assure continued accuracies. The contractor shall prepare and maintain a written schedule for the maintenance and calibration of such equipment based upon the type and purpose of usage.

3.4.1 Production Tooling Used as a Media of Inspection

The production equipment used as a media of inspection shall be inspected or proved for accuracy prior to release for production use; shall be reinspected or proved at established intervals.

3.4.2 Use of Contractor's Inspection Equipment

Contractor's gages measuring and testing devices shall be made available for reasonable use when required to determine compliance with contract requirements. If conditions warrant, contractor's personnel shall be made available for operation of such devices and/or verification of their accuracies and condition.

MIL-Q-9858A4.2 Measuring & Testing Equipment

The contractor shall provide and maintain gages and other measuring and testing devices necessary to assure that supplies conform to technical requirements. These shall be calibrated against certified measurement standards which have known valid relationships to national standards at established periods to assure continued accuracy.

Inspection and test equipment shall be adjusted, replaced or repaired before it becomes inaccurate. The calibration shall be in accordance with MIL-C-45662A. The contractor shall insure that subcontractors and vendors sources control accuracy of measuring and testing equipment.

4.3 Production Tooling Used as a Media of Inspection

Same as MIL-Q-9858

4.4 Use of Contractor's Inspection Equipment

Same as MIL-Q-9858

MIL-I-45208A3.3 Measuring & Testing Equipment

The contractor shall provide and maintain equipment and other measuring and testing devices necessary to assure that the specifications conform to the techniques required. These shall be calibrated at established intervals against certified standards which have known valid relationships to national standards.

Calibration of inspection equipment shall be in accordance with MIL-C-45662.

3.3 Production Tooling Used as a Media of Inspection

Same as MIL-Q-9858

3.3 Use of Contractor's Inspection Equipment

Same as MIL-Q-9858

4.5 Advance Metrology Requirements

The quality assurance program shall include timely identification and report to the contracting officer any precision measurement need exceeding the known "state-of-the-art".

MIL-Q-98583.5.2 Subcontract Data

The contractor shall assure that applicable requirements are properly included or referenced in all subcontracts for supplies. The subcontracts shall contain at least:

- (a) The government number; name and address of the subcontractor and the consignee,
- (b) a clear description of the supplies ordered:
  - (1) Specifications, drawings, process requirements, preservation and packaging, classification of defects, inspection instructions,
  - (2) Requirements for qualification or other approvals.
- (c) Instructions and information necessary when direct shipment from the subcontractor to the government activities is made.

MIL-C-9858A5.2 Purchasing Data

The contractor's quality program shall require his subcontractors to control the quality of services and supplies which they provide. The contractor shall assure that all applicable requirements are properly included or referenced in all purchase orders. The purchase order shall contain a complete description of the supplies ordered, included by statement or reference to all requirements for manufacturing, inspecting, testing, packaging, and any requirements for government or contractor inspections, qualification or approvals. Technical requirements must be included. All drawings, engineering change orders, specifications, reliability, safety, weight or other special requirements, unusual tests or inspection procedures or equipment and any special revisions or model identification. The description of products ordered shall include a requirement for contractor inspection at the subcontractor or vendor source. If necessary, to assure complete assurance of product quality, chemical, physical tests and recording of results on raw materials, by the suppliers are required. Suppliers must notify and obtain approval from the contractor of changes in design. Necessary instructions must be provided when provision is made for direct shipment from the subcontractor to government activities.

MIL-I-4520HA

MIL-Q-98583.5.1 Responsibility

The contractor is responsible for assuring that all his supplies and services conform to contract requirements. The selection of sources and the nature and extent of control shall be based upon and adjusted according to the nature of specifications, the quality evidence furnished by the subcontractor and his demonstrated capability to perform in the specialized field involved. To assure an adequate and economical system for the control of purchased material, the contractor shall utilize, to the fullest extent practicable objective evidence of quality furnished by his subcontractor.

MIL-Q-9858A5.1 Responsibility

The contractor is responsible for assuring that all supplies and services procured from his suppliers conform to the contract requirements. The selection of sources and the nature and extent of control exercised shall be dependent upon the type of supplies, his demonstrated capability to perform and the quality evidence available to assure an adequate and economical control. The contractor shall utilize, to the fullest extent, objective evidence of quality furnished by his suppliers. When the government elects to perform inspection at a supplier's plant, such inspection shall not be used by the contractor as evidence of effective control of quality by such suppliers. A product on the QPL only signifies that the manufacturer made a product which met specification requirements. It does not relieve the contractor of his responsibility. The effectiveness and integrity of control of quality by his suppliers shall be assessed and reviewed by the contractor, at intervals consistent with the complexity and quantity of the product. Inspection of product, upon delivery to the contractor shall be used for assessment and review to determine adequacy and assurance of quality. Test reports, inspection records, etc., should be used in the contractor's assessment and review. The contractor's responsibility for control of purchases includes a procedure for (1) the selection of suppliers, (2) the transmission of design and quality requirements, associated technical requirements, (3) evaluation of the adequacies of procured items and (4) effective provisions for early information feedback and correction of nonconformance.

MIL-I-45208A3.8 Qualified Products

The inclusion of a product on the Qualified Products list only signifies that at one time the manufacturer made a product which met specification requirements. It does not relieve the contractor of his responsibility for furnishing supplies that meet all specification requirements or for performing specified inspections and tests.

3.10 Inspection Provisions

Alternative inspection procedures and inspection equipment may be used by the contractor when such procedures and equipment provide as a minimum, the quality assurance required in the contractual documents. Prior to applying such alternative inspection procedures and inspection equipment, the contractor shall describe them in a written proposal and shall demonstrate for the approval of the government representative that their effectiveness is equal to or better than the contractual quality assurance procedure. In cases of dispute as to whether certain procedures of this contractual inspection system provide equal assurance, the procedure of this specification, the item specification and other contractual documents shall apply.

3.13 Government Evaluation

The contractor's inspection system and supplies generated by the systems shall be subject to the evaluation and verification inspection by the government representative to determine its effectiveness in supporting the quality requirements established in the detail specification, drawings, and contract and as prescribed herein.

MIL-Q-9858**3.5.5 Receiving Inspection**

Subcontracted supplies shall be inspected after receipt as necessary to assure conformance to contract requirements. In adjusting such inspection, consideration shall be given to the controls exercised by the subcontractor at source and evidence of sustained quality conformance. The contractor shall provide procedures for withholding from use all incoming supplies pending completion of required tests or receipt of necessary test reports, except that supplies may be released when under positive control. The contractor shall initiate corrective action with his subcontractors upon receipt of nonconforming supplies whether or not Government Source Inspected, as indicated by nature and frequency of the nonconformance. The contractor shall report to the government representative any nonconformance found on

Government Source Inspected supplies and shall require the subcontractor to coordinate with his government representative on corrective action.

MIL-Q-9858A**6.1 Materials and Materials Control**

Suppliers' materials and products inspected upon receipt to assure conformance to technical requirements. Receiving inspection may be adjusted on basis of the quality assurance program exercised by suppliers. Evidence of the suppliers' satisfactory control of quality may be used to adjust the amount and kind of receiving inspection. Raw materials to be controlled to assure conformance to physical, chemical and other technical requirements. Laboratory testing used as necessary. Suppliers required to exercise equivalent control of raw materials. Raw materials awaiting testing, identified and segregated but may be released for initial production providing that identification and control is maintained. Material tested and approved must be kept identified until such time as the identification is necessarily obliterated by processing.

MIL-I-45208A**3.12 Receiving Inspection**

Subcontracted or purchased supplies shall be subjected to inspection after receipt as necessary to assure conformance to contract requirements. The contractor shall report to the government representative any nonconformance found on government source inspected supplies and shall require his supplier to coordinate with his government representative on corrective action.

MTL-Q-9858MIL-Q-9858AMIL-I-45208A3.6 Inspection During Manu-  
facture

The contractor shall establish and maintain inspection at the appropriately located points in the manufacturing process to assure continuous control of quality of parts, components and assemblies.

6.2 Production Process and  
Fabrication

The contractor's quality program must assure that all production operations of any type and all processing and fabrication is accomplished under controlled conditions. Controlled conditions include documented work instructions, adequate production equipment and any special working environment. Documented work instructions are the criteria for the production processing and fabrication work. These instructions are for criteria for acceptable or unacceptable "workmanship". The quality program will effectively monitor the issuance of and compliance with all these work instructions.

Measurement or tests of the material or products processed is necessary for each work operation and must also be conducted under controlled conditions. If physical inspection is impossible or disadvantageous, indirect control by monitoring methods, equipment and personnel shall be provided. Physical inspection and process monitoring shall be provided when control is inadequate without both, or when contract or specification requires both.

Inspection and monitoring of products shall be accomplished in any suitable systematic manner selected by the contractor. Methods shall be corrected if unsuitability is demonstrated. Adherence to selected methods shall be complete and continuous. Corrective measures shall be taken when non compliance occurs.

Any type of inspection shall be employed in any combination desired by the contractor which will adequately and efficiently protect product quality and the integrity of processes.

Criteria for approval and rejection shall be provided for all inspection of product and monitoring equipment and personnel. A means of identifying approved and rejected product shall be provided.



MIL-Q-9858MIL-Q-9858AMIL-I-45208A3.7 Special Processes

When government approval or certification of processes equipment or personnel is required under the contract, the contractor shall assure that he and his subcontractors are fully qualified prior to requesting government approval.

6.2 Production Process and Fabrication (Cont'd)

Certain processes are of such complex and specialized nature that detailing of work documentation is required. Such processing may require an entire work specification. For these special processes, the quality program shall assure that procedures or specifications are adequate and that processing environments and the certifying, inspection, authorization and monitoring of such processes to the special degree necessary for these ultra-precise processes and super complex work functions are provided.

3.4 Process Controls

Process control procedures shall be an integral part of the inspection system when such inspections are a part of the specification or contract.

3.8 Inspection of Completed

The contractor shall inspect completed supplies as necessary to assure that contract requirements have been met.

6.3 Completed Item Inspection and Testing

The quality program shall assure inspection and test of completed products and shall measure overall quality and shall simulate to a sufficient degree and use and functioning, including endurance and qualification testing; provide for reporting to designers any unusual difficulties, deficiencies, or questionable conditions. Modifications, repairs, or replacements subsequent to final inspection or testing shall require reinspection and retesting.

3.1 Inspection of Completed Supplies

Inspection of completed supplies is set forth under contractor responsibilities.

3.9 Sampling Inspection

Any sampling procedures in addition to those required by contract used by the contractor to determine the acceptability of supplies shall afford reliable assurance of the maintenance of acceptable quality levels.

6.6 Statistical Quality Control and Analysis

In addition to statistical methods required by contracts, statistical techniques may be utilized whenever such procedures are suitable to maintain the required control of quality. Sampling plans may be used when tests are destructive or when a reduction in inspection or testing can be achieved without jeopardizing quality. The contractor may employ sampling inspection in accordance with applicable military standards and sampling plans (MIL-STD-105, MIL-STD-414 or Handbooks H-106, 107 & 108). Other sampling plans shall be subject to review by the cognizant government representative. Any sampling plan used shall provide valid confidence and quality levels.

3.9 Sampling Inspection

Sampling inspection procedures used by the contractor to determine quality conformance of supplies shall be as stated in the contract or shall be subject to approval by the government.

MIL-Q-9858MIL-Q-9858AMIL-I-45208A3.10 Indication of Inspection Status6.7 Indication of Inspection Status3.5 Indication of Inspection Status

The contractor shall maintain a system for identifying the inspection status of supplies. Identification controls shall be of a design distinctly different from government inspection identification.

Same as MIL-Q-9858

Same as MIL-Q-9858

3.11 Nonconforming Supplies6.5 Nonconforming Material

Same as MIL-Q-9858A except no costs or losses data required.

Procedures shall be provided for control of nonconforming supplies, including the identification, presentation and disposition of reworked, repaired, or waived supplies. The acceptance of nonconforming supplies is a prerogative of and shall be as prescribed by the government. All nonconforming supplies, when practicable, shall be diverted from normal movement channels. The nonconforming supplies shall be positively identified to prevent use until disposition is made. Holding areas mutually agreeable to the contractor and government representative shall be provided. (If Air Force procurement, use USAF Specification Bulletin M. 515 "Control of Nonconforming Supplies").

The contractor shall establish and maintain an effective and positive system for controlling nonconforming material, including identification, segregation, and disposition. Repair or rework of nonconforming material shall be in accordance with documented procedures acceptable to the government. The acceptance of nonconforming supplies is a prerogative of and shall be as prescribed by the government and may involve a monetary adjustment. All nonconforming supplies shall be positively identified to prevent unauthorized use and shipment from mingling with conforming supplies. Holding areas or procedures, mutually agreeable to the contractor and the government representative shall be provided by the contractor. The contractor shall make known to the government, upon request, the data associated with the costs and losses in connection with scrap and rework necessary to reprocess nonconforming material to make it conform completely.

MIL-Q-9858MIL-Q-9858AMIL-I-45208A**3.14 Storage**

The contractor shall provide adequate procedures for control of supplies stored for the government or to be applied to government contracts to insure preservation and treatment in accordance with applicable requirements. Procedures shall define inspections to be scheduled at regular intervals.

**3.15 Transportation**

The contractor shall provide procedures for protecting the quality of supplies during transportation in accordance with contract requirements.

**6.4 Handling, Storage and Delivery**

The quality program shall provide for adequate work and inspection instructions for handling storage, preservation, packaging and shipping to protect the quality of products and to prevent damage, loss, deterioration, degradation or substitution of products; and to prevent handling damage. The quality program shall describe the use of special crates, boxes, containers, transportation vehicles and the necessary protection against deterioration of damage to products in storage; shall specify periodic inspection for detection of deterioration or damage. Products subject to deterioration or corrosion during fabrication or interim storage shall be protected against such deterioration and corrosion. When necessary, packaging shall include the means for accommodating and maintaining critical environments within packages, e.g. moisture content levels, gas pressures, etc. When such packaging environments must be maintained, packages shall be labeled to indicate this condition. The quality program shall monitor shipping work to assure that products shipped are accompanied by required shipping and technical documents and that compliance with Interstate Commerce Commission and other applicable shipping rules and regulations is effected to assure the safe arrival and identification at destination.

MIL-Q-9858MIL-Q-9858AMIL-I-45208A3.5.3 Government Inspection  
of Subcontracts7.1 Government Inspection at  
Subcontractors or  
Government Facilities3.11 Government Inspection  
at Subcontractors or  
Vendors Facilities

The government reserves the right to inspect at source all supplies or services not manufactured or performed within the contractor's facility. Government Source Inspection, (GSI) shall not constitute acceptance nor relieve the contractor of his responsibility to furnish an acceptable item. The purpose is to assist the government representative at the contractor's facility to determine the conformance of supplies or services. Such GSI can only be requested by or under authorization of the government representative.

Same as MIL-Q-9858

Same as MIL-Q-9858A

3.5.3.1 When GSI is required, the contractor shall add to his subcontract the following:

"Government inspection is required prior to shipment from your plant. When material is ready for inspection or if practical, 10 days in advance thereof, notify the government representative who normally services your plant".

3.5.3.2 When under authorization of the government representative, changes to the subcontract are furnished directly by the subcontractor to the government representative at his facility rather than government channels. The contractor shall add to his subcontract, a statement, substantially as follows:

"On receipt of this order, promptly furnish a copy to the government representative who normally services your plant, or if none, to the nearest Army, Navy or Air Force inspection office in your locality. In the event the representative or office cannot be located, our purchasing agent shall be notified."

When Government inspection is required, the contractor shall add to his purchasing document the following statement:

"Government inspection is required prior to shipment from your plant. Upon receipt of this order, promptly notify the Government representative who normally services your plant so that appropriate planning for government inspection can be accomplished."

3.11.1 Same as MIL-Q-9858A

3.11.2 Purchasing Documents

Same as MIL-Q-9858A

Same as MIL-Q-9858 3.5.3.2  
except DSA added

MIL-Q-9858MIL-Q-9858AMIL-I-45208A3.5.4 Review and Processing  
of Subcontracts7.1 Government Inspection at  
Subcontractors or Govern-  
ment Facilities3.11.3 Referenced Data

All subcontracts and referenced data for supplies applying to a government contractor shall be available for review by government representative to determine compliance with the requirements for the control of such purchases. Copies of subcontracts required for government purposes shall be furnished in accordance with the instructions of the government representative.

Same as MIL-Q-9858 with the addition of:

Same as MIL-Q-9858

The contractor shall make available to the government representative reports of any nonconformance found on government source inspected supplies and shall (when requested) require the supplier to coordinate with his government representative on corrective action".

MIL-Q-9858MIL-Q-9858AMIL-I-45208A3.12.1 Government Furnished Material7.2.1 Government Furnished Material3.6 Government Furnished Material

When material is furnished by the government, the contractor's procedures shall include at least the following:

- (a) Examination upon receipt consistent with practicability to detect damage in transit.
- (b) Inspection for completeness and proper type.
- (c) Periodic inspection and precautions to insure adequate storage conditions to guard against damage from handling and deterioration during storage.
- (d) Functionally test, either prior to or after installation, or both, as required by contract to determine satisfactory operation.

Same as MIL-Q-9858

with the addition of:

- (e) Identification and protection from improper use or disposition.
- (f) Verification of quantities.

3.12.1.1 Damaged Government Furnished Material7.2.2 Damaged Government Furnished Material3.6.1 Damaged Government Furnished Material

The contractor shall report to the government representative, any government furnished material found damaged, malfunctioning, or otherwise unsuitable for use. In the event of damage or malfunction during or after installation, the contractor shall determine and record probable cause and necessity for withholding material from use.

Same as MIL-Q-9858

Same as MIL-Q-9858

MIL-Q-9858MIL-Q-9858AMIL-I-45208A3.12.2 Bailed Property7.2.3 Bailed Property

The contractor shall, as required by terms of the Bailment Agreement, establish procedures for the adequate storage, maintenance and inspection of government property bailed to him. Records of all inspections and maintenance performed on bailed property shall be maintained. These procedures and records shall be subject to review by the government representative.

Same as MIL-Q-9858

3.13. Evidence of Approvals.

When engineering inspections, tests, or government approvals are contractually required on supplies such as engineering models, qualification test articles, preproduction test articles and "first article", these supplies shall be subject to the requirements of this specification. The contractor shall maintain current records of such approvals.

MIL-Q-98584.1 Intended Use

This specification is to be used as a part of the contractual documents by reference in the contract. When made a part of subcontracts, all provisions of this specification when applied to contractors, shall apply equally to the subcontractor.

4.2 Contract Reference

All contracts to which this specification applies shall contain a clause substantially as follows:

"Quality Control:

(a) Title, number, date of this specification.

(b) The contractor shall provide and maintain a system that complies with the requirements of the above referenced specification. Notwithstanding the provisions of this clause the contractor is in no way relieved of the final responsibility to furnish the supplies or services as specified herein."

MIL-C-9850A8.1 Intended Use

This specification will apply to complex supplies, components, equipment and systems for which the requirements of MIL-I-45208 are inadequate to provide needed quality assurance.

8.3 Other Data

Procurement documents should specify the title, number and date of this specification.

8.2 Exceptions:

This specification will not be applicable to types of supplies for which MIL-I-45208 applies. The following do not normally require the application of this specification:

- (a) Personal services and
- (b) Research and development studies of a theoretical nature which do not require fabrication of articles.

MIL-I-45208A6.1 Intended Use

This specification will apply to the procurement and supplies and services specified by the military procurement agencies.

6.2 Other Data

Procurement documents should specify the title, number and date of this specification.



GLOSSARY

## GLOSSARY

ACO	Administrative Contracting Officer
AFLC	Air Force Logistics Command
AFPI	Air Force Procurement Instruction
AFSC	Air Force Systems Command
AMA	Air Materiel Area
CFP	Contractor Furnished Property
CP	Centrally Procured
DCASA	Defense Contract Administration Services Agency
DSA	Defense Supply Agency
GFP	Government Furnished Property
$H_0$	Null Hypothesis
IM	Inventory Manager
IRAN	Inspect and Repair as Necessary
MMSR	Master Materiel Support Record
MRL	Material Requirements List
MRS	Master Repair Schedule
OCAMA	Oklahoma City Air Materiel Area
OIC	Officer In Charge
PCO	Procuring Contracting Officer
$r_s$	Rho
SMAMA	Sacramento Air Materiel Area
SSM	System Support Manager
$x^2$	Chi-Square

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<u>Detachment</u>	<u>Location</u>
25	Dallas, Texas
29	Miami, Florida
30	Charleston, South Carolina
31	Jamaica, New York

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<p>The United States Air Force conducts approximately 50 percent of its depot level aircraft overhaul and maintenance through the use of commercial contractors. An analysis is made of the underlying causes of program difficulties. The thesis concludes that the major area of mutual concern to both governmental contract administration services and contractor personnel is the lack of effective and timely government furnished property support. Further conclusions established as a result of the research are: (1) A continued effort to more precisely delineate work specifications is necessary. (2) The Air Force Procurement Instructions should be amended to provide a more feasible method of approving work requests. (3) A need for a new military specification attuned to overhaul and maintenance type work is indicated. (4) The interface between the Officer-In-Charge (OIC) of a USAF contract administration detachment and the technically cognizant AMA needs to be more clearly defined. (5) More authority and a clearer definition of responsibility be given to the OIC. (6) Anticipated increases in the magnitude of the program indicate a requirement for further study of workload and manning levels.</p>			

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A handwritten signature in cursive script, reading "Kenneth P. Knapp", is written over a horizontal line.

Col. Kenneth P Knapp  
Dean, School of Systems and Logistics  
Air Force Institute of Technology